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BOMBAY BRANCH

OF THE

ROYAL ASIATIC SOCIETY.

TOWN HALL, BOMBAY.

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STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION

OF

INDIA,

DURING THE YEAR 1872-73.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY.

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PREFACE.

THE statement exhibiting the moral and material progress and condition of India for 1871–72 was the first of a new series. It was arranged on a plan by which an inquirer might obtain, by the perusal of one section, a good general knowledge of what had taken place during the year under review in connection with any subject in which he might be interested. It was thought that a knowledge was required, not so much of the general proceedings of the different local governments, as of the progress that had been made throughout British India in improving the condition of the people and in providing for their moral and material wants. In commencing a new series it was thought necessary to give a concise account of the previous history of administrative measures connected with such subjects as land revenue, irrigation, and some others, so that, during the perusal of future statements similarly arranged, there might be ready means of reference to a fuller account of any measure or undertaking the yearly progress of which might be recorded. This plan provides a place for every subject or section of a subject, and so long as it is closely adhered to in future statements the progress under any given head may be traced throughout the different years without any trouble.

It is necessary that the first of a series designed on this plan should be complete as regards the provision of a place for every important section of the great subject of which the statement treats. This could hardly be successfully achieved at the first attempt; and there were shortcomings and omissions in parts of the statement prepared for 1871–72. It was, therefore, decided to make the statement for 1872–73 a second edition of that for 1871–72; so that the former will, in fact, be the first of the new series. The meeting of a new Parliament was another reason for this decision.

In the second edition, now presented, the events and administrative measures of 1872–73 are substituted for those of 1871–72 throughout. Nearly the whole has been re-written, and it remains only to enumerate the additions and alterations. The whole subject is arranged, as before, in 15 sections, each treating of a department of administration which is complete in itself, and under one or other of these heads every measure and every event naturally finds its place.

The first section treats of changes and reforms in the Administration, and of Legislation. The additions consist of a further account of the reforms introduced by Sir George Campbell in Bengal, and of a more complete statement of the laws respecting municipalities and of their working.

The financial section contains further information respecting the systems of local taxation, and an account of the currency, especially of the paper currency. The section on land revenue, which was very incomplete as a review of the systems throughout India, has been considerably enlarged. It now contains a much fuller account of the permanent settlement in Bengal and Bahar, and of the recent discussions respecting the settlement of the North West Provinces. An account of the Orissa settlement, and of the waste lands rules, a fuller account of the Oudh settlement, and of the Madras system, including details respecting the method of classing land, and accounts of land revenue systems in Sind, Mysore, and Curg, have also been added to this section; which contains many other additions, and has, indeed, been almost entirely re-written.

The section on agriculture in the present statement commences with information respecting the existing arrangements for the study of meteorology in India. The next subject is the crops, and especially those of the Lower Provinces. Notices are then given of existing means of collecting reliable agricultural statistics; which are followed by an abstract of the important new 'Land Improvement Act.' The paragraphs on agricultural societies, Government gardens, experimental farms, and cotton cultivation have received considerable additions. Then follow accounts of the jute, rhea, hemp, flax, silk, tobacco, Carolina rice, coffee, tea, chinchona, and other special cultivations, of the fisheries, and of horse and cattle breeding.

The sections on irrigation and communications, on forests and minerals, contain

many additions and corrections, and all information on these subjects is brought up to March 1873.

Special care has been given to the new section on trade and manufactures, which has been completely re-written. The balance of trade and the mysteries of exchanges have been explained by the light of Sir Richard Temple's minute of September 1872. Fuller particulars are given respecting the rise of native cotton manufactures and its cause, and the jute trade. Full accounts are inserted of the intercourse of British Indian merchants with Zanzibar and other ports on the east coast of Africa; of the Povindah trade; of the trade with eastern Turkistan and the Palampur Fair; of the various commercial routes from India to Tibet; and such particulars as could be collected of the internal trade of India.

The section on the condition of the people has received many additions. To the account of the census of Bengal has been added those of the census of the North West Provinces, the Central Provinces, Madras and Bombay. Much fuller particulars are given respecting vital statistics, wages, sanitation, diseases and their alleviation and prevention, and emigration. The section on police and justice has been revised and corrected, and the statistics have been brought up to March 1873.

The section on education has been re-written and arranged on a plan more in accordance with the general system on which the statement is based. The various classes of schools throughout India, referred to in the Despatch of 1854, are now dealt with separately. Their usefulness and influence affect different classes of the community, and, although they form parts of one homogeneous scheme, and are, to some extent, linked together by scholarships, it is thought that the most lucid way of dealing with the subject will be to glance at the condition and progress of each class over all India, instead of, as in the first edition, giving a general summary of the educational work of each province. The paragraphs on missionary work in the statement for 1871–72 brought the subject down to 1873, and, as no later information has been received, they have been reprinted in the present statement.

The political section is entirely new. It is an enumeration of the native states, with a brief account of the treaty rights and obligations of each, of their rulers and history, with some general statistics. The aim is that all may have their due place in the general scheme of the Report. With the object of making this enumeration as clear and intelligible as possible, a classification of the Native States has been adopted, with reference to geographical position, ethnological affinity, and political connection.

The military section is on the same plan as in the statement for 1871–72. The concluding section, on surveys and statistics, gives a general sketch of the origin and progress of the great trigonometrical survey, of the topographical surveys,* of the publishing work done in the office of the Surveyor General at Calcutta, of the system for the supply of instruments, of the work of the Geographical Department at the India Office, and of the materials for the preparation of the statements.

The various subjects are illustrated either by tabulation or by cartographic illustration. The tables, forming an appendix, are intended to illustrate those subjects which are best shown by that method. Such are the areas and population of provinces, the financial statements, the state of trade, the progress of education, and the number and distribution of troops. The maps show the territorial divisions; the rainfall; the systems of irrigation; the railways, lines of telegraph, and light-houses; the reserved forests; trade routes across the Himalayas; the distribution of troops; and the progress of surveys.

CLEMENTS R. MARKHAM.

* Marine Surveys are treated of in the Section on Communications, Revenue Surveys in that on Land Revenue, the Geological Survey in that on Minerals, and Meteorology in that on Agriculture. See pages 88 for Marine Surveys; 23, 26, 28, 30 for the Revenue Surveys; 105 for the Geological Survey and 34 for Meteorology.

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LIBRARY
OF THE
BOMBAY
BRANCH
OF THE
ROYAL ASIATIC SOCIETY

A MAP OF
INDIA
WITH THE PLACES NAMED IN
THE STATEMENT
FOR 1872_73.
Scale of Statute Miles.
TURKISTAN
CHINESE EMPIRE
Gobi or Great Desert
AFGHANISTAN
KASHMIR
Plateau of Tibet
TIBET
PUNJAB
BALUCHISTAN
RAJPUTANA
The Thar or Indian Desert
NEPAL
BHUTAN
ASSAM
OUDH
LOWER PROVINCES
CENTRAL INDIA AGENCY
CENTRAL PROVINCES
BERAR
BOMBAY PRESIDENCY
THE DECCAN
HAIDARABAD
MADRAS PRESIDENCY
MYSORE
BURMA
BRITISH BURMA
SIAM
ARABIAN SEA
BAY OF BENGAL
Laccadive Islands
Maldive Islands
Andaman Islands
Nicobar Islands
CEYLON
Malabar Coast
GULF OF CAMBAY
GULF OF SIAM
Mouths of the Indus
Mouths of the Ganges
Mouths of the Mahanadi
Mouths of the Godavari
Mouths of the Krishna
Mouths of the Irawadi
Port Blair
Pulicat L.
C. Comorin
Pt. de Galle
C. Negrais
Plain of Chatisgarh
Northern Ghats
Sambar Salt L.
Lop Nor
Tarim Kul
Kokan
Bokhara
Kashgar
Yarkand
Khotan
Balkh
Kabul
Quetta
Multan
Amritsar
Lahore
Delhi
Agra
Gwalior
Lucknow
Allahabad
Patna
Monghir
Calcutta
Dacca
Mandalay
Bamo
Yunnan
Lassa
Ratang
Sining
Bombay
Ratnagiri
Goa
Mysore
Bangalore
Madras
Pondicherry
Kaveri R.
Nagpur
Indore
Ahmedabad
Surat
Khandesh
Hyderabad
Vizagapatam
Rangoon
Bankok
Gulf of Siam

STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION OF INDIA

DURING THE YEAR 1872–73.

I.

ADMINISTRATION AND LEGISLATION.

THE year 1872-73 was the first of the administration of Lord Northbrook, who arrived at Calcutta on the 3rd of May. It was also the first year of the administrations of the Governors of Madras and Bombay; Lord Hobart arrived at Madras on May 15th, and Sir Philip Wodehouse at Bombay on May 7th. During this year Sir George Campbell was Lieutenant-Governor of Bengal, Sir William Muir of the North West Provinces, and Sir Robert Davies of the Punjab. Sir George Couper was Chief Commissioner of Oudh, Mr. J. H. Morris of the Central Provinces, Sir William Merewether of Sind, and Mr. Eden of British Burma.

The Legislative Council of the Governor General passed 31 Acts, the most important of which was that to amend the rent law in the North West Provinces. It is referred to in section on land revenue. An Act was also passed with reference to the canals in Northern India.

The Legislative Council of Bengal passed bills during the Session of 1872-73 to amend the Salt Act, the excise laws, and the municipal laws, and for the registration of births and deaths within certain areas. In Madras only two Acts were passed, one to amend the Police Act, and the other to extend the purposes for which port rules may be passed. The new Bombay Municipal Act (III. of 1872) will be noticed further on, and the Bombay "Port Trust Act" places in the hands of a corporate body, the members of which are nominated by the Government, the wharves, docks, piers, warehouses, lights, moorings, and reclamations of Bombay harbour.

Lord Mayo created a new department in the Government of India to deal with all subjects connected with revenue, agriculture, and commerce, which has now been three years in working order. The want of such a department had been the direct cause of much loss and waste, and of numerous mistakes in times past, in consequence of the special subjects belonging to it being scattered in various departments, and not being considered as any one's business. Yet these very subjects are the most important with which the Government has to deal. On the wise and judicious treatment of them absolutely depends the material welfare of the people, and the fruitfulness of the various branches of the revenue. Lord Mayo and the majority of his Council felt that more systematic measures should be taken for securing the improvement and development of the agriculture, commerce, and industrial arts of India; and that closer attention should be given to the great products which constitute the staples of agricultural and manufacturing industry, and of export trade. Agriculture in India is susceptible of almost indefinite improvement; while the future development of Indian commerce depends on the quantity and quality of existing staples, and on the introduction of new products. The cultivation of the quinine-yielding chinchona plant, of cotton, coffee, tea, indigo, tobacco, rhea, and jute fibres, and other products, needs the intelligent and watchful care of a central department, as do all measures for improving the breeds of horses and cattle, for introducing new products, for

I. ADMINISTRATION AND LEGISLATION.

regulating fisheries, and for promoting agricultural instruction. Lord Mayo's Government, therefore, came to the conclusion that a separate department should be formed for the care of these great interests, and to take cognizance of all matters affecting the practical improvement and development of the agricultural resources of the country, and the administration of the land revenue, the forests, commerce, mines, surveys, and industrial arts.

Lord Mayo's proposal was favourably received by the Home Government. The Secretary of State considered that the Finance Minister should be a minister of control only, separated from the actual administration of any branch of the revenue. He thought that the work of the new department would increase as the natural result of special attention being devoted to many branches of administration which had hitherto been more or less neglected. It was anticipated that the local governments would, as a rule, originate improvements and reforms, and that the new department would make the valuable experience, locally gained, subservient to the interests and welfare of the whole empire. Formerly great attention was paid to audit and to retrenchment; now the far wider and more important duty of watching the sources and development of the revenue, and of ascertaining how it may be increased, and how best the welfare of the people may be promoted, will also receive its due share of attention.

The Department of Revenue, Agriculture, and Commerce was constituted by a Resolution of the Government of India, dated 6th June 1871, and Mr. A. O. Hume, C.B., was appointed its first Secretary. It has charge of all questions relating to land revenue and settlements, to Government advances for works of agricultural improvement, to agriculture and horticulture, to studs and cattle breeding, to silks and fibres, to forests, to commerce and trade, to customs, salt, opium, excise, and stamps, and to industrial arts. The department also has under its charge the census, the gazetteers and collection of statistics, and the surveys, including geology and meteorology. Its establishment has only entailed an additional expenditure of under 2,000*l.* a year, and its usefulness has already become apparent. Subjects of vital importance to the people of India that were formerly neglected, or treated in separate departments, will now receive constant and careful attention and supervision. The department, during the year under review, published a most valuable series of papers on tea cultivation in India; and a monograph on the tobacco industry. Lord Mayo hoped and expected that in due time the local governments would form similar departments for the same purposes.

In close connection with the new department is the statistical survey of India, of which Dr. W. W. Hunter was appointed Director General in October 1871. The object of Dr. Hunter's appointment is to introduce systematic arrangements for collecting accurate statistical material, to act as a central guiding authority to the local collectors of information, to take steps to ensure uniformity in their operations, and hereafter to consolidate provincial reports in a general gazetteer of India.

Dr. Hunter's work on Orissa forms the first fruit of the statistical survey, which is the largest of the kind that any single government has ever yet attempted. It deals with a population exceeding 240,000,000, split up into 50 different races, speaking a great variety of languages, and representing very diverse stages of human society. But Dr. Hunter succeeds to a vast accumulation of materials collected during the last 100 years. The Court of Directors encouraged researches into their territories, and between 1807 and 1813 they expended 30,000*l.* on a statistical examination of part of Bengal alone. But there has hitherto been no central organization for bringing such local researches to a common focus. Materials are buried in different offices, unavailable either to the public or to the Government. The survey of Bengal, just alluded to, was stored away in the India House in 50 folio volumes of maps and manuscripts without being touched. Dr. Hunter's first duty has been to collate and utilize already existing materials, and to supplement their deficiencies. His plan is to distribute the work as much as possible, and at the same time to secure uniformity and punctuality in the results by means of a central editor. A set of leading questions has been issued by the Director General showing exactly what is required, and reducing the work of the local officers to the minimum. The returns will gather together all the essential characteristics of the empire, district by district, exhibiting them in a skeleton form.

The final operation of the statistical survey will be to work up the whole, and to compile a connected account of each district from the returns. These provincial accounts will be condensed by the Director General into an Imperial Statistical Account of India.

The Government of India, with the approval of the Secretary of State, has adopted a uniform system of orthography for the purposes of the statistical survey, and for official use generally. The system is based on that of Sir William Jones, but a certain freedom is allowed in spelling names which have become familiar to the public, and Dr. Hunter has himself prepared a guide to the orthography of Indian proper names, as an illustration of the principles sanctioned. An official list of towns, geographical divisions, and natural features, such as rivers, mountains, &c., is in course of preparation.

The Lieutenant Governor of Bengal has also been very active in re-organizing the administrative machinery of his provinces. He found no reliable, or even approximately reliable, information available regarding the area of land under cultivation, the prevailing rent rates, the area sown with different crops, which districts produce more grain than they consume, which hoard grain, which export it. He felt that, in case of famine, he could not tell whence the deficiencies of the famine tract could be best supplied.

His first changes were in the procedure of the Board of Revenue. Formerly the Board disposed of land revenue and other questions. Sir George Campbell ordered that they should all be submitted to him for final sanction. Instead of the two members sitting as a Board as heretofore, he placed one in separate charge of land revenue, and the other of salt, opium, customs, excise, income tax, and stamps; and he considers that the efficiency of the executive administration has been much improved by the arrangement. The enormous quantity of reports and returns which used to be sent in by heads of departments have been reduced. Each head is now ordered to analyze and digest the returns into one, and in that form to submit them to the Government.

Sir George Campbell has also made a change in the districts, by concentrating more power in the hands of the magistrate-collectors. He has been anxious to give them a stronger controlling power over all the departments in their districts, for he holds that departments are excellent servants but bad masters. The collector will thus be the real executive chief and administrator, over every one and every thing except the proceedings of courts of justice. Thus the police have been made more entirely subordinate to the magistrates, the gaols have been placed under their general control, as well as the public works. In most parts of India, except Bengal, there is a native executive establishment, which is extremely useful in many ways, under an officer called a tahsildar in the Upper Provinces, and a mamlutdar in Bombay. These officers see to the assessment and expenditure of local rates, look after the excise, manage sequestered estates, arrange for the passage of troops, carry out local works and repairs, and obtain statistics. Sir George Campbell is desirous of giving some such executive establishment to the district officers in Bengal. He would institute a native civil service on a wider basis, and thus supply a want which, in his opinion, impairs the efficiency of administration in the Lower Provinces. This has been effected to some extent by the formation of sub-divisional establishments for executive and judicial work, and for the collection of statistical information.

The main features of the changes thus effected in the administration of the Lower Provinces are a more active system of Government, the recall to life of the district officers, and the centralization of power and responsibility in the hands of the magistrate. He now exercises control over all departments; the nominal subordination of the police to him has become real; the executive engineer is under his orders; and he has the guidance of all education measures, with the aid of a committee.

Municipal institutions in India were, in their present form, the creation of our Government, and are quite distinct from the old village communities. Municipalities were first formed for the three presidency towns. In Calcutta the municipality consists of the justices and a chairman named by Government. Its expenditure amounts to 436,108*l.*, and the taxation is levied in the form of lighting, police, water, and general rates on all owners and occupiers, besides license fees for carriages, horses, and carts, and license tax on trades and professions. The Calcutta municipality already has a debt of 1,400,000*l.*, and a sinking fund for paying off the loans. Its income is nominally 507,298*l.*, and actually 270,000*l.* Great improvements have been effected, especially as regards drainage and water supply. In Madras the receipts of the municipality are 51,774*l.*, and there is a debt of 101,957*l.*, being money borrowed for completing the water supply project. The municipal funds are applied to education, hospitals, vaccination, and other objects of public utility, and on experiments to utilize sewage for agricultural purposes, which have been very successful. The water supply project is the chief undertaking of the Madras Munici-

I. ADMINISTRATION AND LEGISLATION.

pality; for which 37 miles of piping have already been laid. In Bombay there had been agitation for self-government for some time, and the Municipal Act for the city became law in February 1873. It grants the franchise to certain classes of ratepayers, who elect half the corporation of 64 members, the other half being nominated by the Government and the justices. The functions of this corporation are to fix the rates and vote budgets. There is also a Town Council of twelve persons, eight elected and four nominated by Government. This body has full control over the finances. At the first election, out of 3,927 rate-payers entitled to votes, only 700 recorded them. Of the newly elected members of the corporation 22 are English, 19 Hindus, 17 Parsis, 5 Muhammadans, and 1 Portuguese. The municipal receipts of the city of Bombay amount to 304,833*l.*, and the expenditure to 297,772*l.*

Except in the presidency towns, municipal institutions only date from 1850. It is true that an Act was passed in 1842 empowering inhabitants of towns to form municipalities, but it proved ineffectual for the purpose, and the existing municipal institutions are based on Acts XXVI. of 1850, XX. of 1856, VI. of 1868, IV. of 1873 for the Punjab, and some provincial Acts.

If the people of a town expressed a desire to that effect, the Government was empowered to order Act XXVI. of 1850 to be put in force. A certain number of inhabitants were then appointed as commissioners for defining the taxes to be raised for the purposes of the Act, for applying them in payment of officers and servants, for the execution of works for the improvement of the town, and for other expenses. This Act is now in force in very few places, except in the Bombay Presidency. Act XX. of 1856 was passed for the maintenance of police chaukidars, and may have effect in every town to which the local government may extend it by notification. The magistrate is then to determine the number of police to be maintained, and the sum to be annually raised, which is to be either an assessment according to the property of the persons liable, or a rate on houses and grounds not exceeding five per cent. of their annual value. In each town brought under the provisions of the Act, the magistrate is to appoint a punchâyat or committee, consisting of three or five inhabitants, whose duties are to apportion the rate; but the police are appointed by the magistrate. The surplus, after paying the wages of the police, may be devoted to the purposes of cleaning or lighting the town, or to other improvements. Act VI. of 1868 may be extended, by Government notification, to any town, when the provisions of Act XXVI. of 1850, and XX. of 1856 are to cease to have effect. The police rate is fixed at *Rs.* 1. 8. a year for each house; and the municipal tax is limited to *Rs.* 2. 4. for each house. The proceeds are to constitute a town fund, under the control of the magistrate. This fund is to be applied to the support of the police, construction and maintenance of roads, the general improvement of the town, vaccination, and dispensaries. A town committee is to be formed of not less than five inhabitants, and, if necessary, subordinate ward committees. These committees are to be nominated by the magistrate, unless orders are given for their appointment in some other way, and one-third are to be officials; they are empowered to elect their own chairman, and a third of the members are to retire each year. Their duties are to consult and advise with the magistrate on the assessment and expenditure of the town funds. If the Government appoints the magistrate to be the chairman of a town committee it becomes a corporation, and the committee itself receives magisterial powers. In the Punjab all municipalities are under Act IV. of 1873. By it, the towns where it is in force are administered by a committee which must consist of five members, but which is invariably much larger. These committees are divided into three classes, with graduated powers of expenditure; those of the first class expending the town funds on objects authorized by the Act, without control beyond a Government audit of accounts; those of the second class only expending sums without sanction up to 200*l.*, while all proceedings of those of the third class are subject to confirmation.

These Acts, it will be seen, render municipal institutions compulsory when the Government sees fit to introduce them into any town. The Act VI. of 1868 applies to large cities, the older Act, XXVI. of 1850, to smaller towns, and Act XX. of 1856, called the Chaukidari Act, to groups of villages and very small towns.

Excluding Calcutta, the municipal expenditure in Bengal amounts to 178,764*l.* The oldest municipal Act yet unrepealed is XXVI. of 1850, which is now only in force in one town in Bengal, namely, Jamálpur in the Monghir district. It is the only Bengal Act which admits of *octroi* duties. There are, however, 68 small towns and groups of villages under the Chaukidari Act for watch and ward (XX. of 1856). The Bengal Legislative Council have passed several important municipal Acts. The

first is III. of 1864, which introduced an elaborate system of local taxation, and vested its administration in a body of commissioners, partly *ex-officio*, and partly selected from the inhabitants. This body submits annual estimates of expenditure, and furnishes statements of receipts and outlay, and, with the sanction of Government, the commissioners may raise loans. Bengal Municipal Act, VI. of 1868, is for smaller towns, the number of the committees being only five and with less power, and the occupiers being taxed, instead of the owners. Bengal Act, VI. of 1870, is for rural villages, and to reform the police. The Lieutenant Governor considered that the existing municipal Acts differ in their scope from each other; and in the Municipal Bill which was passed by the Bengal Council in 1871–72, an attempt was made to weld these Acts together, and to regulate the whole subject of municipal administration and taxation. But the Bill failed to receive the sanction of the Viceroy. The Bengal Council, therefore, passed an Act which enables the ratepayers to elect commissioners under Act II. of 1874; and extends their powers, by allowing them to spend the funds on education, vaccination and medical relief, and registration. Serampur was the first municipality to avail itself of this franchise. Sir George Campbell considers that the best method of guarding against apathy and indifference in the town committees, is to render the position of their members more dignified and independent. In Bengal there are 25 large towns with municipal institutions under a local Act (III. of 1864), 91 smaller towns under another local Act (VI. of 1868), and 68 under the Chaukidari Act.

In the North West Provinces there are 78 municipalities under Act VI. of 1868; and, in many cases, the two-thirds of the committees which are not official are elected by popular suffrage. A few have magisterial powers under the Act. Their income, in 1872–73, was 184,920*l.*, raised by the *octroi* impost, the tax on houses, one on professions and trades, and a tax on carriages and horses. The *octroi* duty forms by far the largest item of the municipal funds in the North West Provinces, the Punjab, and Oudh. It is levied on food, fuel, building materials, piece goods, and metals entering the town (Government property, salt, opium, and articles liable to customs duty, except piece goods and metals, and exciseable liquors being exempt); and so long as it does not become a transit duty, there is no taxation less unpleasantly felt or more profitable. There are also 315 towns under the Chaukidari Act, where the assessments are made under the orders of the magistrates, but the details are worked out by a Punchâyat, or committee of the inhabitants. The collections under this Act amounted to 33,261*l.*, most of which was absorbed by the pay of the police, but the surplus was applied to local improvements.

In the Punjab, the municipal committees, as has just been explained, are divided into three classes. There are eight of the first class—Delhi, Murri, Lahor, Multan, Amritsar, and the three hill sanataria; 19 of the second, and 98 of the third class, besides 189 minor places administered by a magistrate in conjunction with a punchâyat, which are practically in the third class. The municipal income was 206,366*l.*, five-sixths of which was derived from the *octroi* duty. Election is confined to two or three of the municipalities of the most important towns. In Oudh there are 19 towns under municipal control; but the committees are all nominated by Government officials, except at Lucknow and Faizabad. Here municipal government is still in its infancy; but in the Central Provinces the principal committees are gradually acquiring more independence, and the people are beginning to take more interest in their own affairs. There are now 62 municipal towns in the Central Provinces, of which 26 are in the valley of the Narbada. Since 1868, members of committees have been elected by the ratepayers, and in the larger towns the public take a decided interest in the elections, while the position of a member of a municipality is prized. The whole municipal income is 84,515*l.*, of which 56 per cent. is derived from *octroi* duties.

In the Madras Presidency there are 46 municipal towns. By the Madras Municipal Act (III. of 1871), not less than three inhabitants are appointed by the Governor in Council, as commissioners, in any town brought under its operation, to carry out its purposes, to continue in office three years; and the collector is *ex officio* commissioner in every municipal town in his district. It is provided that the Government, if thought advisable, may arrange for the election of a certain number of the commissioners by the ratepayers. The funds are to be expended on the repair and maintenance of streets and bridges, diffusion of education, and on hospitals, dispensaries, choultries, markets, tanks, and wells. The commissioners may levy a rate on the annual value of houses and lands, a tax on arts, professions,

I. ADMINISTRATION AND LEGISLATION.

trades, and callings, on carriages and horses, and tolls. The income of the 46 municipal towns of Madras is 111,293*l.*; and the expenditure 110,240*l.* Municipal institutions were introduced into Mysore in 1862, when municipal committees were created at Bangalore and Mysore. The experiment proved a success, and now there are 58 municipalities in Mysore. It will be a work of time to make the people value these institutions, but every effort is being made to induce the native official classes to interest themselves in the management of the local municipalities.

There are 168 municipalities in the Bombay Presidency, besides 54 in Sind. They are constituted under the provisions of the old Act, XXVI. of 1850, but it is generally admitted that the time has come for its amendment; and a Bill for that purpose is under consideration. Many towns systematically evade the burden of municipal government, while it has been introduced into others which are so small as to render its working impracticable. The most important municipalities are Súrat, with a revenue of nearly 50,000*l.*; Poona, Ahmadabad, each with an income of 10,000*l.*; Pandharpur, Sholápur, Nariád, Bulsur, Násik, Ahmadnagar, Belgaum, Hubli, and Sátára, with incomes from 9,000*l.* to 2,000*l.*; and Karáchi, with an income of 22,000*l.*; Haidarabad, Shikárpur, Sakkhar, and Lárkhána, in Sind. The members of the municipal boards in Sind, except those who have seats *ex officio*, are elective. The principal municipal revenues are from *octroi* duties, which are said to be more popular than any other form of taxation. The total municipal income, exclusive of the city of Bombay, was 198,857*l.* in 1872-73.

In Burma, municipal action is much needed; and funds are required at Rangún for conservancy, water supply, and lighting. That town has grown with extraordinary rapidity. When first occupied by the English, it was in a low swamp, under water at every rise of tide. Lands were sold, and the proceeds were directed to the purpose of raising the land and laying out streets. The Lands Sale Fund is now exhausted. Meanwhile, the town is spreading in every direction, and people are settling in swamps in the unreclaimed part. The population of Rangún is now 100,000, and 400,000 tons of shipping visit its port, yet the only water supply is from unwholesome wells. There is not a single drain, except on the surface, and there are no public lamps.

A LIST OF THE CIVIL DIVISIONS OF INDIA.

Note.—When the chief town is not of the same name as the district, it is added in parentheses ( ).

THE THREE PRESIDENCIES OF BENGAL, MADRAS, AND BOMBAY.

I. BENGAL PRESIDENCY

Under the Governor-General of India in Council, including:—

1. *The Lower Provinces*, under a Lieutenant-Governor.
2. *The North-West Provinces*, under a Lieutenant Governor.
3. *Oudh*, under a Chief Commissioner.
4. *The Panjab*, under a Lieutenant-Governor.
5. *Rajputana*, under Native Princes and a Political Agent.
6. *Central India*, under Native Princes and a Political Agent.
7. *The Central Provinces*, under a Chief Commissioner.
8. *Haidarabad*, under the Nizam, attended by the British Resident at Haidarabad; also the assigned districts of *Berar*, under the same Resident as Chief Commissioner.
9. *Mysore* and *Coorg*, the first under the Rajah, and both under one Chief Commissioner.
10. *British Burma*, under a Chief Commissioner.
11. *Assam*, under a Chief Commissioner.
12. *Munipur*, under the Rajah and a Political Agent.

1. THE LOWER PROVINCES.

In Ten Divisions under Commissioners.

1. *Bhagalpur Division.*
In Four Districts:—
1. Bhagalpur. 3. Purniah.
2. Monghir. 4. Santhal Parganas (Dumka)

2. *Burdwan Division.*
In Five Districts —
1. Baneura. 3. Birbhum (Suri)
2. Burdwan. 4. Hughli.
5. Midnapur.

3. *Chittagong Division.*
In Five Districts:—
1. Chittagong.
2. Chittagong Hills (Chandraguna).
3. Noakhali (Sudnaram).
4. Tipperah (Comilla).
5. Tipperah Hills (Agartalla).

4. *Chota Nagpur Division.*
In Five Districts:—
1. Hazaribagh.
2. Lohardaga (Ranchi).
3. Manbhum (Purulia).
4. Singbhum (Chaibasa).
5. Tributary Estates, viz.:—
Bonai
Chang Bukar (Janakpur).
Dhalbhum (Ghatalla).
Gangpur (Sirgdi).
Jashpur. Kharsawan.
Koria (Andjila).
Seraikelah. Sirguja.
Udaipur.

5. *Dacca Division.*
In Four Districts:—
1. Backergunj (Burrisol).
2. Dacca. 3. Faridpur.
4. Maimanasinh.

6. *Kuch Behar Division.*
In Three Districts:—
1. Darjiling. 2. Julpigori.
3. Kuch Behar.

7. *Orissa Division.*
In Four Districts:—
1. Balasore. 2. Cattack. 3. Puri.
4. Tributary Estates, viz.:—
Atgarh. Athmallik (Hondapa).
Bod. Burumba. Blankanal.
Daspalla. Joremu. Hindole.
Khandapara. Kenjhar. Lahara. Morbhang. Nilgiri. Narsinhpur. Nayagarh. Rampur.
Sukinda. Talcher. Tigiria.

8. *Presidency Division.*
In Five Districts:—
1. CALCUTTA, the seat of the Viceroy and of the Lieutenant-Governor.
2. Jessore.
3. Nadden (Kishnagar).
4. Sunderbans.
5. Twenty-four Parganas (Alipur).

9. *Patna Division.*
In Six Districts:—
1. Champaran (Motihari).
2. Gaya. 3. Patna.
4. Saran (Chapra).
5. Shahabad (Arrah).
6. Tirhut (Mozaffarpur).

10. *Rajshahi Division.*
In Seven Districts:—
1. Bogra. 2. Dinajpur.
3. Maldah (English Bazar)
4. Murshidabad (Berhampur).
5. Pabna.
6. Rajshahi (Rampur Boalia).
7. Rangpur.

2. THE NORTH-WEST PROVINCES.

In Seven Divisions, under Commissioners, and Two Native Principalities.

1. *Agra Division.*
In Six Districts:—
1. Agra. 4. Farakhabad.
2. Etawah. 5. Mattra.
3. Etah. 6. Mainpuri.

2. *Allahabad Division.*
In Six Districts:—
1. Allahabad.* 4. Fathipur.
2. Banda. 5. Hamirpur.
3. Cawnpur. 6. Jaunpur.
* The chief town is the seat of the Lieutenant-Governor.

3. *Benares Division.*
In Six Districts:—
1. Azimgarh. 4. Ghazipur.
2. Benares. 5. Gorakhpur.
3. Basti. 6. Mirzapur.

4. *Jhansi Division.*
In Three Districts:—
1. Jalaun. 2. Jhansi.
3. Lallatpur.

5. *Kamaun Division.*
In Two Districts:—
1. British Garhwal (Srinagar).
2. Kamaun (Almora).

6. *Mirat Division.*
In Six Districts:—
1. Aligarh. 4. Mirat.
2. Bulandshahr. 5. Muzaffarnagar.
3. Dehra Dun. 6. Saharanpur.

7. *Rohilkhand Division.*
In Six Districts:—
1. Bareli. 4. Muradabad.
2. Bijnur. 5. Shahjahanpur.
3. Budaon. 6. Terai (Kashipur).

Native Principalities.
1. Garhwal (Tehri). 2. Rampur.

3. OUDH.

In Four Divisions under Commissioners.

1. *Faizabad Division.*
In Three Districts:—
1. Bharaich. 2. Faizabad. 3. Gonda.

2. *Lucknow Division.*
In Three Districts:—
1. Barabanki. 2. Lucknow.* 3. Unao.
* The chief town is the seat of the Chief Commissioner.

3. *Rai Bareli Division.*
In Three Districts.—
1. Pratabgarh. 2. Rai Bareli.
3. Sultanpur.

4. *Sitapur Division.*
In Three Districts:—
1. Hardui. 2. Kheri. 3. Sitapur.

4. THE PANJAB.

In Ten Divisions under Commissioners, and Native Principalities.

1. *Ambala Division.*
In Three Districts:—
1. Ambala. 2. Ludhiana. 3. Simla.

2. *Amritsar Division.*
In Three Districts:—
1. Amritsar. 2 Gurdaspur.
3. Sialkot.

3. *Delhi Division.*
In Three Districts:—
1. Delhi. 2. Gurgaon. 3. Karnul.

4. *Derajat Division.*
In Three Districts:—
1. Bannu.
2. Dera Ghazi Khan.
3. Dera Ismail Khan.

5. *Hissar Division.*
In Three Districts:—
1. Hissar. 2. Rohtak. 3. Sarsa.

6. *Jallandar Division.*
In Three Districts:—
1. Hushiarpur. 2. Jallandar.
3. Kangra.

7. *Lahore Division.*
In Three Districts:—
1. Firozpur. 2. Gujranwala.
3. Lahore. The chief town is the seat of the Lieut.-Governor.

8. *Multan Division.*
In Four Districts:—
1. Jhang. 3. Multan.
2. Montgomery. 4. Muzaffargarh.

9. *Peshawar Division.*
In Three Districts:—
1. Hazara (Abbottabad).
2. Kohat. 3. Peshawur.

10. *Rawalpindi Division.*
In Four Districts:—
1. Gujrat. 3. Rawalpindi.
2. Jhilam. 4. Shahpur.

Native Principalities
under the Panjab Government.
Arranged in Geographical groups.

Trans Sutlej Highlands.
Jamu and Kashmir. Chamba
Mandi. Kallur (Bilaspur).
Busahir (Rampur).

Cis Sutlej Highlands.
Southern Group:—
Nalagarh Pattiala, two parts.
Sirmur (Nahun).
Jubal (Chupal?).

West Central Group:—
Malleg (Pata). Beja.
Baghat, in detached parts
Kothar. Kuniar (Haut?). Dhamin.

East Central Group:—
Kunthal, in two parts. (Julung.)
Koti, in two parts.* Madhan.*
Theog.* Gund.* Pandur.*
Ralengarh.* Bulsun (Ghodna).
Dargoti. Taroche, in two parts.
*Tributary to Kunthal.

Northern Group:—
Mangal. Bujji. Bhagal. Kanuti.
Shangri. Kounarsen. Kotgarh.

Sirhind Plain.
Kalsia, detached parts in Ambala.
Pattiala, exclusive of Hill territory.
Nabhah, in detached parts.
Jind, in detached parts.
Malleir Kotluh. Faridkot.
Kapurthala. Bhawalpur.
Lohara. Dujanu. Patodi.

5. RAJPUTANA.

In Seven Assistant Agencies and the British Districts, as follows:—

1. *Meywar Agency.*
Udaipur or Meywar. Banswara.
Dungarpur. Pratabgarh.
Jawad Nimach, a district of Gwalior.
Nimbahera, a district of Tonk.
Kherwara Hill States:—
Salumber. Parah. Gagunda.
Chari. Korabur. Parah Tanah.
Jharole. Madri. Chamund. Kotra, including Oghna, Panurwa, and Jurah. Thanah. Dewas.

2. *Jaipur Agency.*
Jaipur. Umara. Kishangarh Tawa. Bikanir. Sambhar Lake, British district. Shekawatti, including Khetri and Sikur.

3. *Marwar Agency.*
Johdpur or Marwar. Mullani. Godwar.
Jesalmir.

4. *Haraoti Agency.*
Bundi. Kotah.
Tonk districts:—
Tonk Aligarh.
Rampura. Chapra.
*The other Tonk districts are Perawa, in West Malwa Agency, Sironj, in Bhopal Agency, Nimbahera, in Meywar Agency. The Haraoti Agent also reports on these Tonk districts.
Jallawar. Shahpura.
Kuchowia, a district of Meywar.
Phulia, a British district.

5. *Eastern States Agency.*
Bhartpur. Kerauli. Dholpur.

6. *Alwar Agency.* Alwar.

7. *Sirohi Agency.* Sirohi.

8. *British Districts.*
Ajmir and Mairwara.

6. CENTRAL INDIA.

In nine Assistant Agencies as follows. Also one British District.

1. *Indore Residency.*
Indore.* Dewas senior.
Dewas junior.
Bagli, a district of Gwalior.
* Other parts of Maharajah Holkar's Indore territory are in the Assistant Agencies numbered 3, 6, 7, 8.

2. *Gwalior Agency.*
Lushkar Gwalior. Sabalgarh.
Gird Gwalior. Narwar.
Tonwurgarh. Jhansi.
Shikarwari. Isagarh.
*Other parts of Maharajah Sindhia's Gwalior territory are in the Assistant Agencies numbered 1, 3, 6, 7, 9.

3. *Bhopal Agency.*
Bhopal.
Omutwara: Rajgarh, Nursingarh.
Kilchipur. Karwai.
Mak-udangar. Mahmudgarh.
Basoda. Larawut. Pathari.
Gwalior districts:—
Bhilsa. Sonkach.
Gunj Basoda. Sandursi, share of.
Mullargarh. Cuchora.
Shujawalpur.
Indore districts:—
Zirapur. Gagroni. Machilpur.
Kantaphore. Sandursi, share of.
Shonj, a Tonk district.
Sarangpur, a Dewas district.
Grassia and Pindari Estates:—
Ugra Burkheira. Dabia Dhir.
Hirapur. Dara Khairi. Kumalpur. Dabla Ghosi. Khursia. Jularia. Ramgarh. Sutalia. Tunpa. Kujori. Dugria. Jabuah Buil. Piplia Nagar. Kankerkheria.

4. *Bundelkhand Agency.*
States:—Ajigarh, Archa, Bijawar, Charkari, Chattrapur, Datiah, Puna. Sampter and Umra. *Jaghires*:—Alipura, Baoni, Behri, Behut, Bigonda, Girouli, Gourihar, Jigni, Jussu, Kunyadhana, Logasi, Naugong, Nygoa Rehni, Parurkuchar, Savita. *Chowbey Jaghires*:—Bhysonda Kampta Rijola, Nayagaon, Paldeo, Pahra, Tiraon. *Husht Bhya Jaghires*:—Bijna, Dhurwai, Pahari, Tori Fathipur.

5. *Bhagalkhand Agency.*
Rewah. Maihir. Nagod.
Sohawal. Kothi.

6. *West Malwa Agency.*
Ratlam. Sitamow. Jawra. Sillana.
Gwalior districts:—
Mundsor. Ujjain. Bynsoda.
Ramjah. Augor.
Indore districts:—
Rampora. Suvana.
Sonel. Naraingarh. Mahipur.
Dewas district.—
Alot.
Jhaira Patan districts:—
Pach Pahar. Ganjrar.
Tonk district:—
Pirawa.
Piplawda.
Guaranteed thakoors—
Jowasseah. Nowamah. Sheogarh. Dabri. Bichrode (1). Kalukheri. Narwar. Lalitgarh. Pipliha. Naugoug. Duttanah. Agrardah. Dhulatia. Bichrode (2). Biloda. Punth Piploda. Burulia.

7. *Bhopawar Agency.*
Bhil Agent.
Dhar. Jabua. Ali Rajpur. Jobat. Kutliwara. Ratanmauli. Mutwarh.
Gwalior districts:—
Amjhera. Dektaun. Sagor.
Bagli. Bankanir. Munawur.
Indore districts:—
Patlad, Tsundlah. Chikalda.
Guaranteed Bhumias:—
Nimkhera. Chota Burkhera.
Mota Burkhera. Khalse Bawri.

8. *Mounpur Agency.*
Deputy Bhil Agent.
Maunpur, British district. Barwani. Jamnia. Rajgarh. Gurhi. Kotiday. Barthpura. Bagode, a Dewas district.
Indore districts:—
Khusrawal. Barwai.
Dhurgaon. Khurgone.
Agra and Bombay Road, from Mhow to the Khandesh frontier.

9. *Guna Agency.*
Gwalior districts:—
Bujrungarh. Omri. Raghugarh.
Bhadowra. Parone. Dhurnuda.
Gurrah. Sissi.

7. THE CENTRAL PROVINCES.

In Four Divisions under Commissioners, and a separate District under a Deputy Commissioner.

1. *Chattisgarh Division.*
In Three Districts:—
1. Bilaspur. 2. Raipur.
3. Sambalpur.

2. *Jabalpur Division.*
In Five Districts:—
1. Damoh. 4. Sagor.
2. Jabalpur. 5. Seoni.
3. Mandla.

3. *Nagpur Division.*
In Five Districts:—
1. Balaghat (Burha)
2. Bhandara 3. Chanda.
4. Nagpur. The chief town is the seat of the Chief Commissioner.
5. Wardha.

4. *Narbada Division.*
In Five Districts:—
1. Baitul. 4. Nimar (Asirgarh).
2. Chindwara.
3. Hoshangabad. 5. Narsinhpur.

5. *Upper Godavari District.*

Native Principalities.
Attached to Bilaspur district:—
Kawarda. Sakti.
Attached to Raipur district:—
Kanker. Kondka.
Khairagarh. Nandgaon.
Attached to Sambalpur district:—
Bamra. Raigarh-Bargarh.
Karond or Kalahandi. Rafrakhol.
Patna. Sarangarh. Sonpur.
Attached to Hoshangabad district:—
Makrai.
Attached to Upper Godavari district:—
Bastar.

8. HAIDARABAD AND BERAR.

HAIDARABAD.

In Sarkars or Circars grouped partly in 5 Circles, as follows; the rest forming the Surf-i-khas, Pargah, Dewasi, and Suburban domains, in some unexplained way.

I. Kambuampet, Nelgunda, Warangal. II. Elgandel, Indore, Medak. III. Aurangabad, Bir, Patri. IV. Bidar, Naidrug, Nandair. V. Raichur, Sagar. The other Circars are Amrabad, Bathaiwari, Basim, part of. Bhonagir, Dharur. Deverkunda. Ghunapur. Golkonda. Gulbargah. Hominabad Jalna. Kaliani. Kaulas. Koilkunda. Mahur. Malangar. Mudgal. Mulkhair. Pangal. Puraindu. Paitan. Ramghir.

BERAR,
or The Haidarabad Assigned Districts.

In Two Divisions.

1. *East Berar.*
In Three Districts:—
1. Amraoti. 2. Ellichpur. 3. Wun.

2. *West Berar.*
In Two Districts:—
1. Akola. 2. Buldana. 3. Basim.

9. MYSORE AND CURG.

Mysore in Three Divisions under Commissioners.

1. *Ashtagram Division.*
In Two Districts:—
1. Mysore. 2. Hassan.

2. *Nagar Division.*
In Three Districts:—
1. Chituldrug. 2. Kadur.
3. Shimoga.

3. *Nandidrug Division.*
In Three Districts:—
1. Bangalore. 2. Kolar.
3. Tumkur.

CURG. A British District.

10. BRITISH BURMA.

In Three Divisions.

1. *Arakan Division.*
In Four Districts:—
1. Akyab. 3. Ramri.
2. Northern Arakan. 4. Sandoway.

2. *Pegu Division.*
In Five Districts:—
1. Bassein. 4. Rangun.
2. Myanoung. 5. Thayetmyo.
3. Prome.

3. *Tenasserim Division.*
In Six Districts —
1. Amherst. 4. Tavoy.
2. Mergui. 5. Toungu.
3. Shweygeen. 6. Salween.

11. ASSAM.

Lately separated from the Lower Provinces, and not yet grouped in Divisions.

Goalpara. Sibsagar. Kamrup.
Lakhimpur. Dorang. Naga Hills.
Naugong Cachar. Silhet.
Garo Hills.
Khasia and Jayanta Hills:
Khasia Estates:—
Bhowal. Chella. Cherra. Dewara Nonglyrmen. Jirang. Khyrum. Langrum. Maharam, Lower. Maharam, Upper. Malai Chamut. Maoyang. Maodori. Marriat. Massanram. Mylliem. Nobosepooh. Nongklow. Nongspoong. Nongstoin. Ramrai.
Jayanta Estates:—
Sixteen, not specified.

12. MUNIPUR.

A Native Principality.

II. MADRAS PRESIDENCY.

In Twenty Districts and Six Native Principalities:—

1. Belary.
2. Coimbatore.
3. Cuddapah.
4. Ganjam (Chicacole).
5. Godavari (Rajamundri).
6. Krishna (Masulipatam).
7. Karnul.
8. Madras City* and Chengalpat.
9. Madura.
10. Malabar (Calicut).
11. Nilgiri (Utacamand).
12. Nellore.
13. North Arcot (Chittore).
14. Salem.
15. South Arcot (Cuddalore).
16. South Canara (Mangalore).
17. Tanjore.
18. Tinnevelli (Palamcotta).
19. Trichinapalli.
20. Vizagapatam.
* The seat of the Governor.

Native Principalities.
Under the Madras Government.
1. Cochin.
2. Travancore.
3. Pudukota.
4. Bodogoda. } Jaipur
5. Chinna Kemedi } Agency.
6. Jaipur.

III. BOMBAY PRESIDENCY.

In Three Divisions, under Commissioners; and Native Principalities under Political Agents.

1. *Northern Division.*
In Seven Collectorates:—
1. Ahmadabad. 2. Bombay Island.
3. Broach. 4. Kaira. 5. Khandesh (Dhulia) 6. Kolaba. 7. Nasik. 8. Panch Mehals. 9. Surat. 10. Thana.

2. *Southern Division.*
In Nine Collectorates:—
1. Ahmadnagar. 2. Belgaum.
3. Dharwar. 4. Canara (Honawar). 5. Kaladji. 6. Puna. 7. Ratnagiri. *8. Satara. 9. Sholapur.

3. *Sind Division.*
In Five Collectorates:—
1. Haidarabad. 2. Karachi. 3. Shikarpur. 4. Thar and Parkar.
5. Upper Sind Frontier.

Native Principalities.
Under Political Agents of the Bombay Government.

NORTHERN DIVISION.

1. *Kach Agency.*
Kach.

2. *Kattywar Agency.*
Under a Political Agent and Four Assistants.

1. *Jhalawar Division.*
Under a Political Assistant.
Drangdra. Vithulgad. Wankanir. Wudwan Station. Wudwan (Head Quarters). Chohla. Bhoika. Than Luktur. Dussara. Sayela. Parri. Chura. Sudamba. Jusdun. Shauka. Mull. Limri, special Assistant. Bajana. Wunode.

II. *Sorath Division.*
Under a Political Assistant.
Junughar. Wusawad. Jafferabad. Bhilka. Bantwa, special Assistant. Kuba. Lakhapadur. Porbandar. Mendarda. Jaitpur. Buggusra. Dedan. Manukwara (Head Quarters). Chitul.

III. *Halar Division.*
Under a Political Assistant.
Nowanagar. Gowridar.
Morvi. Pal.
Dhrole. Hudala.
Kotra Sangani. Gadka.
Malia. Kotharia.
Jalia Dewani. Kotra Nayaji.
Drapha, in four taluks:—
Drapha. Sarudar Wari.
Mulila Derl. Umrapur.
The Rajput Bhayati thana, in thirteen taluks:—
Rajpura Ishwuria. Rhadwa.
Kanksiali. Shadpur. Buldhoi.
Lodhika. Mowa. Khirusra. The Virpur Khuryri thana. Vindalli. Sisang Chandli. Mengni thana. Ganpur. Rajkot, special assistant. Virwa.

IV. *Gohilwar Division.*
Under a Political Assistant.
Bhowunagar. Chauk. Palitana. Datha. Walch. Chamardi. Lathi. Palyad. Sonpuri.
*** See also Baroda Residency, Ahmadabad District, and the Portuguese Territories, for the rest of Kattywar.

3. *Palanpur Agency.*
Under a Political Superintendent.
Palanpur. Suiligaon. Radhanpur. Bhabar. Thanad and Morwara. Khankrej. Deodar. Wao. Terwara. Warye. Districts not named Santalpur and Charcaut.

4. *Mahikanta Agency.*
Kuthesun.
Nani Marwar, except three taluks and Edar.
Saburkanta.

Political Assistant.
Edar.

Political Assistant.
Watrak Kanta. Rehwar Kanta.
Bahgisi Zilla.
Three taluks in Nani Marwar.

5. *Rewakhanta Agency.*
Rajpipla. Sunth. Chota Udepur.
Kadana. Baria. Sanjeli. Lunawara. Bhadarwa. Balasinur. Umlta.
Sankhera Mewas, in twenty-eight Estates.
Patadu Mewas.
Seven Civil Stations, under Agency Superintendence, viz.:—
Baria, Rampur, Lunawara, Wadla, Pandu, Dorka, Wusawa.

6. *Panch Mehals Agency.*
Narukhot (chief town Jambaghora).

7. *Baroda Residency.*
The Gaikawar's territories in Gujarat, Kattywar, and Khandesh:—
In Gujarat:—
Baroda. Puttun. Wusravi.
In Kattywar:—
Amreli. Korinar. Dhari. Damnagar. Dantarwa. Okamandel.
In Khandesh:—
Wajpur taraf.

8. *Kambay Agency.*
Kambay.

9. *Surat Agency.*
Sachin. Bansda. Dharampur.

10. *Khandesh Agency.*
Dang Bhil tribes:—
Garvi. Phopri. Waarnashib. Awachal. Axnil. Chinchli. Dherbauti.
Sargana taluka.
Mehwassi tribes:—
Chickali. Singpur. Gauli. Nal. Kathi. Nawalpur.

11. *Nasik Agency.*
Piath.

12. *Thana Agency.*
Jawar.

13. *Jinjira Agency.*
Jinjira.

SOUTHERN DIVISION.

14. *Sattara Agency.*
The Pant Pratinidhi:—Atpadi, &c.
The Pant Sucheo:—Bor.
The Nimbalkar:—Phaltan.
The Dafiekar:—Jat.

15. *Akalkot Agency.*
Akalkot.

16. *Kolhapur and the Southern Mahratta Agency.*
Kolhapur. Sangli. Jamkhandi. Miraj, senior. Miraj, junior. Kurandwar, senior. Kurandwar, junior. Mudhol. Ramdurg.

17. *Sawantwari Agency.*
Sawantwari.

18. *Dharwar Agency*
Savanur.

SIND DIVISION.

19. *Khairpur.*

IV. FRENCH TERRITORIES.

In Bengal.
1. Chandernagore.

In Madras.
2. Karical, in the Cavert delta.
3. Mahé, in Malabar.
4. Pondicherry, in South Arcot, the seat of Government
5. Yannaon, in the Godavari delta.

V. PORTUGUESE TERRITORIES.

In Bombay.
1. Daman, near Surat.
2. Diu, in Kattywar.
3. Goa, adjoining Canara, the seat of Government.

A MAP OF THE CIVIL DIVISIONS OF INDIA

INCLUDING

GOVERNMENTS, DIVISIONS, & DISTRICTS,

POLITICAL AGENCIES, & NATIVE TERRITORIES.

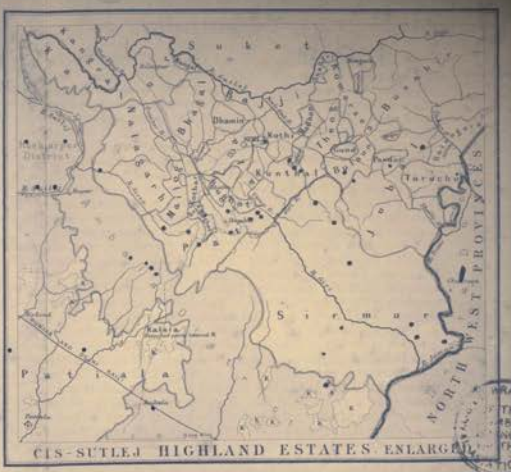
Scale of Statute Miles.

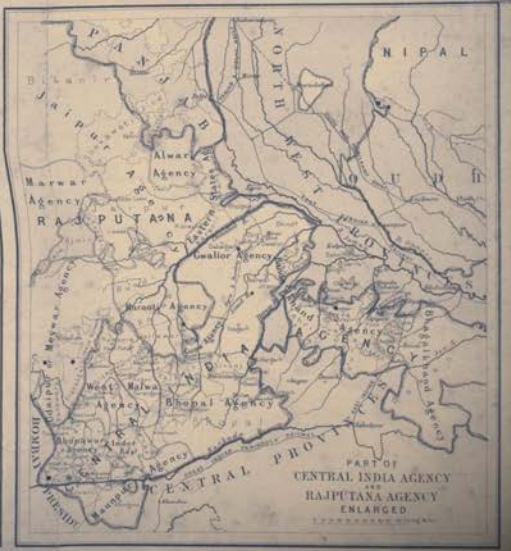
100 50 0 100 200

NOTE. *The British Districts are tinted.*

Edwd. Saunders, Engr.

A MAP OF
THE
CIVIL DIVISIONS
OF
INDIA
INCLUDING
GOVERNMENTS, DIVISIONS, & DISTRICTS,
POLITICAL AGENCIES, & NATIVE TERRITORIES.
Scale of Statute Miles.
NOTE. The British Districts are named.
RAJPUTANA
Marwar Agency
Gwalior Agency
Chota Nagpur
Chattisgarh
BERAR PROVINCES
HAIDARABAD
MYSORE
MADRAS
Rajshahi
Kuch Behar
Presidency
CALCUTTA
Mouths of the Brahmaputra
Mouths of the Krishna
Mouths of the Gaumaura
Mouths of the Irrawadi


Suket
Dhamin
Kothi
Kunthal
Sirmur
Patiala
Kalsia
NORTH WEST PROVINCES
CIS-SUTLEJ HIGHLAND ESTATES ENLARGED


NIPAL
Alwar Agency
Marwar Agency
RAJPUTANA
Gwalior Agency
Marwar Agency
West Malwa Agency
Bhopal Agency
Bhagalkhand Agency
CENTRAL PROVINCES
BOMBAY
PRESIDENCY
PART OF
CENTRAL INDIA AGENCY
AND
RAJPUTANA AGENCY
ENLARGED

II.

FINANCE.

THE income of 1872–73 amounted to 50,219,489*l.*; of which 21,348,669*l.* was derived from land revenue; 8,684,691*l.* from the sale of Bengal opium and the duty on Malwa opium; 6,165,630*l.* from the salt tax; 8,166,329*l.* from customs, excise, assessed taxes, and stamps; and 5,854,170*l.* from smaller items. The ordinary expenditure amounted to 48,453,817*l.* leaving a surplus of 1,765,672*l.* Of the expenditure 38,205,212*l.* are spent in India; and 10,248,605*l.* in England; of which 1,146,116*l.* is for stores for India; and 9,102,489*l.* for other charges. Tables showing the revenues and charges, and receipts and disbursements, and the items of revenue and expenditure, during the year 1872–73, will be found in the Appendix.

The main source of revenue is derived from the demand on land; but this is a branch of administration of such importance as to require treatment in a separate Section. Next in importance comes the salt tax. The consumption of salt in India is greater, in proportion to other articles, than in any other part of the world. It is an absolute necessary of life, both for human beings and for cattle.

The salt tax has always been raised on various systems by the different local Governments. Until 1863 the districts on the sea board of the Bay of Bengal were divided into salt agencies. Advances were made to the agencies, and they agreed to manufacture and sell to the Government a certain quantity of salt at a certain rate. This salt was stored in Government warehouses until it was sold. The merchants paid the fixed price, including the duty, and received an order for the quantity required, upon a particular agency. The cost of each particular kind of salt was fixed each year by the Board of Revenue. The importation of foreign salt was also allowed, and it commenced in 1818, but there was no large importation until 1835. The custom dues were intended to maintain the average prices of Government sales. This Government monopoly was an artificial system of the worst kind, for the districts where the salt agencies were established were ill-adapted for the production of salt. The sea-water becomes diluted at the mouths of the Ganges and Brahmaputra; the salt cannot be evaporated by the sun's rays, and an expensive boiling process was necessary. In 1863 the Government resolved to abandon the system of manufacture altogether, and to rely upon an excise, and upon the duty on imported salt. The consequence was that the production in Bengal ceased at once, and entirely. There was no excise on salt at all in the first year after the abolition of the agencies, for there was no one who had sufficient capital to manufacture under the excise system. The price of salt fell 50 per cent. It was imported at 50 rupees per 100 maunds, having been manufactured at 100 rupees per 100 maunds. The chief importation is from England; but salt also comes from France, Madras, Bombay, Sind, and the Persian Gulf. In 1872–73 the quantity of salt imported into Bengal was 247,782 tons. The Bengal duty is *Rs.* 3. 4*a.* per maund, or about 1*d.* per pound, and the amount raised in 1872–73 was 2,660,369*l.* 7,980,000 maunds for a population of 66$\frac{3}{4}$ millions gives a consumption of about 9$\frac{3}{4}$ lbs. per head for the year. The price of salt is 14 to 18 lbs. the rupee; and a ryot's family, of five persons, may consume 23$\frac{2}{3}$ seers.* The income of a ryot is about *Rs.* 60, so that the salt tax is nearly 3 per cent. on it. There is a manufacture of salt in the Puri district of Orissa, of about 363,402 maunds, under excise rules, along the shores of the Chilka lake; and the people suffer loss and inconvenience from the difference between the Madras and Orissa rates of duty. Their equalization will be a great boon.

In the North West Provinces the salt supply is mainly derived from salt lakes in Rájputána. They overflow every rainy season, and on drying leave the salt in a thick incrustation. Formerly the duty was collected at various stations, scattered over the country. Afterwards the approach from the lakes was cut off by a long customs line which, before 1842, ran up the right bank of the Jamna until it joined the Himalayas, so as also to cut off the Lahor salt. Since that date the line has been turned from Delhi, across by Hissár to the Satlej, and, since the annexation of the Punjab, down that river to its junction with the Indus. This exterior customs line was established in 1834. It is now 2,375$\frac{1}{2}$ miles long. It consists of a hedge, partly green, partly dry. The revenue from the salt line is 1,414,828*l.* The duty on salt in the North West Provinces is three rupees per maund. Bengal imported salt very seldom comes up higher than Allahabad.

* 40 seers make one maund, which is equal to 82$\frac{2}{7}$ lbs.

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The Punjab salt supply is derived from the salt mines; and a customs line is also maintained down the Indus, to keep out the red salt of Pesháwar, 982 miles long. The out-turn from the salt mines (*see* section on minerals) was 1,366,494 maunds, and 416,930*l.* was realised by the sale of it to traders at *Rs.* 3. 1. per maund. From the quarries in Kohat 413,984 maunds were taken, worth 8,874*l.* The income from salt in 1872-73 was 811,190*l.*, including that from the salt line. The duty is 3 rupees per maund.

In Madras the salt revenue, since 1805, has been collected through a monopoly, the sale and manufacture being in the hands of the Government. Contracts are made with manufacturers at the different salt works for the quantity required for the year, which is then brought into store on the Government platforms and sold by measure. The manufacture during the year under review was impeded by the rains, and the production was only 188,111 tons, or 32,721 below the average of the last five years. A sum of 44,600*l.* a year is paid to the French Government not to manufacture salt at Pondicherry, but to receive supplies from the British officials, and not to sell below the Government price. The price has been periodically raised, and it is now two rupees per maund. Without the duty the price would be two annas per maund, so that the duty is *Rs.* 1. 11. The net income in 1872-73 was 1,142,061*l.*; the revenue having been increased by raising the price, but the increase of profit was considerably less than the degree in which the tax was augmented, and the sales have actually diminished. It is proposed also to substitute an excise for the present monopoly, and an Act conferring powers to do so was passed in 1871. The consumption per head of the population in the Madras Presidency was calculated by Mr. Plowden at 15 lbs. a year. It has since been given at 12 lbs. a year.

In the Bombay Presidency the excise system for salt was introduced in 1837. Previously the duty had been imposed partly as transit duty, partly as a monopoly price at the salt works, and partly as excise; but in 1837 a uniform plan was adopted. The sea shore Gujrat salt works are Government property, and a fixed price is paid to the makers. But they were all closed during the year under review, except those at Cambay, Balsar, and Chaurási. The question of permanently closing or retaining them is still under consideration. New salt works were commenced in the end of 1872, at a place called Kharaghora, which are intended to supply the whole of Gujrat. The work of sinking wells and preparing evaporating pans was commenced in November, 1872, and by March, 1873, the works were in full operation. Elsewhere there is an excise on the manufacture, the makers taking out licenses to open works. The total quantity manufactured amounted to 7,901,974 maunds; a large increase on the preceding year. Salt is exported to the Malabar coast, to the Nizam's territory, the Narbada valley, and across the Inland Customs line. The total quantity exported in 1872–73, from the Bombay Presidency, was 3,646,627 maunds. A good deal is smuggled, and large quantities are made by solar evaporation in the Runn of Kach. In 1869 the Bombay duty was raised to *Rs.* 1. 14. The superintendence of the Bombay Salt Revenue has been removed from the Commissioner of Customs to a new officer styled Collector of Salt Revenue. In 1872-73 the excise duty on salt removed from the pans amounted to 628,722*l.*, and the duty on salt imported by land and sea 40,258*l.* There were 62,713 maunds imported by sea, yielding a duty of 11,384*l.* Of this only 271 maunds came from England. The largest quantity (32,713 maunds) was imported from Goa to South Kanara. Large quantities also came from Dwarka and Daman. The other sources of salt income are proprietary right in Government salt pans, ground rent from pans, and sale of smuggled salt, giving a total of 685,013*l.* for 1872-73. The consumption of salt *per head*, in the whole Bombay Presidency, is estimated at only 9·74 lbs.; almost the same as in Bengal. The quantity annually consumed is calculated at 2,275,373 maunds.

In British Burma there is a duty on imported foreign salt, and an excise on that manufactured in the country. In 1872-73 the amount of foreign salt imported was 28,889 tons, and the revenue 13,147*l.* The salt from Liverpool finds its way up the Irawaddy to Bhamo, and is taking the place of indigenous salt.

It will be seen that the salt tax varies in amount in the different provinces; that in Bengal it is *Rs.* 3. 4., in the North West Provinces and the Punjab 3 rupees, in Madras *Rs.* 1. 11., in Bombay *Rs.* 1. 8., and in British Burmah as low as 3 as. per maund.

The possibility of equalizing the duties has long been discussed. Lord Hobart is in favour of reducing the duties in Northern India to the level of Madras. Sir G. Campbell thinks that the tax is too high in the North West Provinces and thos

countries which are far from the sources of supply; he would equalize the rate all over India, except in the lower valley of the Ganges, where the land revenue is permanently settled, making it two rupees for the lower and three rupees for the higher duty. The subject, which is one of vast importance to millions of people in India, is likely to receive very careful consideration from the Government of India.

The gross Bengal opium revenue for 1872-73 amounted to 6,069,793*l.* The number of chests sold was 42,675. No one is allowed to grow the poppy except on Government account, and the manufacture is conducted at two separate agencies, Patna for Bahar, and Ghazipur for the North West Provinces and Oudh. The agents enter into annual engagements with the cultivators, under a system of pecuniary advances, to sow a certain quantity of land with the poppy, the whole produce being delivered to the Government at a fixed rate. There are 330,925 acres under poppy cultivation for the Bahar, and 229,430 for the Benares Agency, in all 560,355 acres. It is a high class cultivation, the land being specially attended to and manured; but of late years the poppy has been attacked by a blight. The opium is gathered in the early spring, manufactured and stored in the summer, and sold in the following year. In the autumn of 1872, Mr. Scott, of the Calcutta Botanical Gardens, was deputed to the localities where the opium blight had appeared, to work two seed gardens of his own, and watch the blight through all its phases, and he also has under his charge several small experimental gardens at the sub-agencies. Successful trials have been made of the effect of interchanges of seeds, between the sister agencies of Bahar and Benares; but the trials of Persian and Malwa seeds have resulted in failure.

Opium is also grown in Malwa, in the region of Central India between Agra and Bombay. It can be grown more cheaply in Bahar, but the Málwa country is within the territory of native states, so that their free grown competes with our highly taxed opium. An administrative problem thus arose, which is analogous to that with reference to the unequal amount of the salt tax. It was necessary to put Malwa opium on an equality with that of the Bahar and Benares, and to deprive it of the advantage it derived from being grown free of the monopoly in native states. This has been effected by levying a heavy duty on Malwa opium at Bombay, its sole legal port of export. Up to 1842 the duty was only 125 rupees per chest, and the quantity of Malwa opium exported was equal to that from Bengal. The object has since been to equalize the duty in two ways; first, by increasing the quantity and lowering the price of Bengal opium, and secondly, by raising the duty on Malwa opium; it is now 600 rupees per chest. The amount realised on account of pass fees on opium at Bombay was 2,612,520*l.* in 1872-73, levied on 43,542 chests, of which 42,379 came from Indor and 1,163 from Ahmadabad. The quantity of Malwa opium exported was 42,401 chests.

After land revenue, salt, and opium, the next item of revenue is the custom duties, which yield 2,653,890*l.*, exclusive of refunds and drawbacks. In Bengal alone the land and sea customs receipts in 1872–73 were 1,090,544*l.*, of which one quarter was for exports and three quarters for imports. Besides Calcutta, the ports are Chittagong, and ports in the Balasor, Cuttack, and Puri districts. The largest item of import duty was on cotton manufactures, amounting to more than three-quarters of a million; next come liquors, and then metals. Of the Bengal exports, more than half consist of rice; then follow indigo, oil seeds, and lac. The exportation of jute, cotton, silk, tea, saltpetre, wheat, and sugar is free. The export duty on wheat was abolished on January 4th 1873. In Madras the customs receipts amounted to 293,742*l.* The customs receipts of Bombay reached to 667,826*l.*, being a decrease as compared with the previous year, which is accounted for by smaller imports of coffee, cotton, piece goods, metals, and railway materials, raw silk, and sugar; and by the export of spirits from bond to Damaun free of duty, for importation to Súrat, under the so-called Firmaun privilege, which was used up to September 1872. This privilege was granted to the Portuguese factory at Súrat by the Great Mogul in 1714, and has hitherto been recognised by our Government. By it goods belonging to Portuguese subjects, and carried in Portuguese vessels, were subject only to $2\frac{1}{2}$ per cent. duty on importation at Súrat, while the tariff rate was three rupees per gallon. A wide margin was thus left for profitable speculation. The Firmaun privilege ceased under orders of the Government of India dated July 26th 1872.

The gross amount of land customs duty was 177,314*l.* and 2,459,830*l.* on sea customs; or 2,653,890*l.*, including miscellaneous receipts, being an increase on 1871-72 of 77,900*l.*

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The abkári, or excise duty on spirits, and the duty on stamps, are the items which come next to customs in importance. In Bengal the excise duties include spirits, intoxicating drugs, and the proceeds of the retail sale of opium. In 1872-73 the Bengal excise revenue amounted to 696,683*l.* It is derived from duties on spirits, and preparations of opium and hemp. The latter, called ganjá, is produced in a limited area in the districts of Rajshahi and Bogra, where it is cultivated in a skilful and scientific way. The duty on it has been so raised as that the consumption has become a third less than it was fifteen years ago, and the revenue has been doubled. There has been an increase in the revenue derived from country spirits; while the consumption has been checked by an enhancement of the distillery duty, an increase of the license fees, and restriction of the number of shops. The Punjab licenses for the sale of spirits and drugs, as well as the sale proceeds of excise opium, in 1872-73, yielded a sum of 87,633*l.*; Oudh 64,443*l.*; and in Madras, Mysor, and other provinces the abkári is a steadily increasing item. In the North West Provinces the excise takes three forms; a duty on the manufacture of country spirits, sale of opium, and farm of the right to retail drugs. The excise revenue of the North West Provinces was 203,090*l.* In Bombay the excise revenue is derived from country-made spirits and toddy, and the retail sale of opium and drugs. Except at Ahmadabad, Broach, Surat, and near Bombay, the right of manufacture and retailing is sold by auction, and it is the interest of the contractors to prevent smuggling. Toddy is manufactured almost entirely in the Konkan, a duty of from 8 annas to 2 rupees being paid on each tree tapped. In Oudh, Mysor, and near some large towns of Bombay, the *Sadar* distillery system prevails. A large enclosure is erected, called a *Sadar* distillery, at the head quarters of each district, where all country spirits must be manufactured. Any one may erect a still within the enclosure, and distil liquor, on condition that, before removal, the excise duty is paid and the spirit reduced to the authorized strength.

The year of 1872-73 was the last in which income tax will form an item in the financial account; as from henceforth it is abolished. The receipts had fallen off, owing to the minimum taxable income having been raised to 100*l.*

A very important financial measure was adopted by Lord Mayo's Government, which came into operation in 1871-72. Formerly, expenditure was completely centralised in the Supreme Government, by whom grants were made to the local Governments, on detailed estimates showing the needs of each department. The local Governments asked as much, and the central Government gave as little, as possible. By a Resolution, dated 14th December 1870, certain heads of expenditure were transferred to the control of the local Governments, with a fixed annual grant to meet them. This grant amounts to the net assignments of the previous year for each head; a proportion of about 7 per cent. being deducted as a relief to the Imperial finances, and as representing a share of the burden to be charged upon local resources. The remainder was made over as a fixed annual income, the excess being defrayed at the cost of the province.

The heads, thus transferred, are jails, police, education, registration, medical services, printing, roads, civil buildings, and miscellaneous public improvements. This will, undoubtedly, prove to be a very beneficial measure. It will give the local governments a special interest in controlling expenditure on these heads, as well as in their efficient administration. The arrangement came into operation, for the first time, in 1871–72. The local taxation and expenditure is divided into two heads—provincial funds, including the annual Imperial assignment; and local funds, comprising all other sources of local revenue. For 1872–73 the Imperial assignment for Bengal was 1,320,383*l.* The combined provincial and local funds amounted to 1,631,799*l.*; and the disbursements were only 1,556,118*l.*; leaving an unspent balance of 462,376*l.* In the North West Provinces the combined receipts were 1,682,805*l.*, and the expenditure 1,663,567*l.* The annual Imperial assignment for the Punjab amounted to 531,800*l.*; and, adding receipts under other heads of service formerly subject to Imperial control, the receipts for provincial funds were 748 718*l.*, and the expenditure 515,153*l.* The receipts from local funds were 751,040*l.*, and disbursements 468,174*l.* The powers granted by Act XX. of 1871 have enabled the Punjab Government to raise 192,280*l.* out of these local funds, by imposing additional rates on the land, to be expended under the control of local district committees. These rates amount to 4½*d.* per head per annum of the agricultural population, or 2*d.* per cultivated acre; and they provide for the repair of 19,000 miles of road, and the maintenance of 116 public hospitals, and 1,042 village schools. Exclusive of municipal, cantonment, and police funds, there was a

balance, at the close of 1872–73, in the Punjab Local Funds, due to insufficiency of the staff of the Public Works Department to carry out the works on hand, and to the imperfect organization of the new district committees. Both defects are being remedied. The Department has been much strengthened, and rules have been issued to define the constitution, powers, and duties of the committees. It is hoped that, at the close of 1874–75, the balance will be considerably reduced. In Oudh there has also been a difficulty in spending the local funds, and out of the income of 616,252*l.*, there is a large balance of 120,794*l.*

In the Central Provinces, local demands are partly met by the *pandhri*, an old Mahratta tax on the non-agricultural classes, which was in existence when Nágpur was annexed, and though re-adjusted, it has always been continued. In 1867 it became a pure income tax on persons whose incomes were derived from any other source than agriculture, the lowest limit being 7*l.* 10*s.*; and persons assessable to income tax were exempted from the *pandhri*. In 1869–70, its proceeds were made over to the local government, and by this means an adjustment of local income and expenditure was effected. The lowest range of the *pandhri* has been raised from 7*l.* 10*s.* to 25*l.* per annum, while the maximum amount assessable has been advanced from 75*l.* to 100*l.* These changes are a great boon to the poorer classes. Out of 143,343 former payers of the *pandhri* tax, 127,000 will be exempted; while the loss of revenue is partly made up by raising the maximum, and thus including a richer class, formerly assessable to income tax. Tolls were also introduced on two important lines of road in the Central Provinces, but with an unsatisfactory result. There are also education, postal, and road cesses, besides the octroi levied by municipalities.

In Madras the Imperial allotment is 797,465*l.*; and here, again, there is a large unexpended balance, due, it is said, to the novelty of the system. In Bombay the allotment from general revenue was 1,051,442*l.*, and the receipts from local taxes 43,120*l.* The local expenditure was 1,070,594*l.*, the surplus at the close of the year being 223,566*l.* By Act III. of 1869 the Bombay Government was enabled to put a cess of 1 anna on land revenue, giving two-thirds of the receipts to the roads, and one-third to education. By Act IX. of 1863, for the suppression of frauds in the cotton trade, fees were taken, on export and on licenses for working presses, of 2 annas per bale, to maintain cotton inspectors, whose duty it is to see that cotton offered for compression is not adulterated. There is also a fund for the repair of jails, established in 1866.

There was a large balance remaining over at the end of 1872–73 in the accounts of provincial and local taxation of almost all the Governments in India. This, no doubt, is due to the novelty of the system, and, as is explained by the Punjab Government, to the inadequacy of the staff of engineers and others who would have to perform the duties connected with the expenditure of funds. If all the work that is contemplated is thoroughly done in each year, as, no doubt, will be the case when the new system is in good working order, these large balances will disappear.

The plan, inaugurated in December 1870, of assigning Imperial funds for certain heads of local expenditure has certainly not led to any serious increase of local taxation, although, in the last few years, there has been a considerable increase in the amount of such taxation. In the North West Provinces the Act XVII. of 1871 sanctioned the levy of cesses for certain purposes at the rate of 10 per cent. on the land revenue, which yields about 32,000*l.*; but simultaneously there has been a reduction of 196,000*l.* in the demand for income tax. In the Punjab Act XX. of 1871 authorizes a levy of a rate upon the land not exceeding six pies in the rupee, for roads, education, hospitals, and wells, the whole amount raised in any district being expended in that district under the superintendence of a local committee. The yield is about 137,000*l.*, but as some of these cesses already existed, the actual amount of additional taxation is 114,000*l.*, while the amount of income tax remitted is 123,000*l.* The local rates in Oudh are 5 per cent. on the land revenue, and yield 35,000*l.*; but the income tax remitted amounts to 37,000*l.* Altogether, including Madras and Bombay, every kind of local taxation in India amounted, in 1865, to 2,000,000*l.*, and now to 3,000,000*l.*

Before referring to the paper currency, it will be useful to insert here a paragraph on the metallic currency of India, using information derived from Mr. Seccombe's monograph on that subject. The silver rupee was first introduced by Shír Shah, the intruding Pátan who had temporarily ejected the Emperor Hamayûn, in 1542, the weight being 11½ mashas. The rupee of the Emperor Akbar—called the *jilály*—was of the same weight and value, being 179·5 troy grains of nearly pure silver. The

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later rupees of Akbar's successors weigh 175 grains. The towns of Agra, Ahmadabad, and Kabul alone had the privilege of minting gold. Allàhabad, Súrat, Delhi, Patna, Kashmir, Lahor, Multan, and Tandah coined silver; and 28 towns were allowed to fabricate copper coins. On the breaking up of the Mogul Empire, numerous mints were established by the Subadars and others who assumed independence; and the abuses that thus arose was very great. The East India Company therefore, in 1773, resolved that all rupees coined for the future by them, should bear the impression of the 17th year of Shah Alam, and thus this *sicca* rupee retained the full value of the original rupee of the Moguls. At about the same time the Súrat rupee was adopted as the currency of the Bombay Presidency, of 178·3 grains troy. This rupee was, in 1800, ordered to be struck at Bombay, and was fixed at 179 grains weight (164·7 pure).

The Benares mint was established by Raja Bulwant Singh, under a sanad from the Emperor Muhammad Shah, in 1730. When Benares was ceded to the Company in 1775, the mint remained under native management until 1795; and it was abolished in 1829. Its rupee was of 175 grains; and it also coined a copper coin largely, called the *trisuli*, from a trident with which it was marked.

On the cession of the Doab in 1802, the rupee struck at the Fathigarh mint, of 165·2 grains, was assumed as the standard of the new territory, and was commonly called the Fathigarh rupee. In 1819 its standard was increased to 180 troy grains, with the same quantity of pure silver. This mint was abolished in 1824, after having coined 77,542,114 *Rs.* Its abolition temporarily caused a great increase in the value of silver, which gave rise to pressure in the North West Provinces, felt most severely by the agricultural classes.

The Sagar Mint had been set up by the officers of the Peishwa in 1779, at Garha Mundlah, it was continued by the British as a useful centre of issue, and a new building was erected in 1824; but this mint was abolished in 1835.

The unit of the Hindu system of currency was of gold; and, in the southern states where the Muhammadans did not gain ascendancy, this system always continued in force. The *huns* of Mysor and the South are the *pagodas* of Europeans which, in 1796, were the principal part of the remittance annually made from Madras to Bengal, caused by the balance of trade in favour of the latter province. A pagoda was worth 3½ rupees; and when, in 1818, the silver rupee of 180 grains (165 pure) was established at Madras and declared to be the standard coin, all accounts and public engagements were ordered to be converted at an exchange of 350 rupees for 100 pagodas. The Muhammadan gold coin was the gold mohur, and by Bengal Regulation of November 21st, 1792, it was declared to be legal tender in all public and private transactions. Sir John Shore recommended silver as the only legal tender; and in 1818, the high standards of the gold mohur and sicca rupee having been found inconvenient, their value was ordered to be reduced to the standards of Bombay and Madras: the gold mohur 204·7 grains (187·6 true), and the rupee 191·9 (175·9 true). These were to be legal tender from January 1st, 1819. From 1801 to 1833, *Rs.* 337,131,778 were coined at the Calcutta mint; *Rs.* 105,815,663 at Benares, up to the abolition of its mint in 1829; *Rs.* 7,542,114 at Furruckabad; and *Rs.* 5,327,503 at Sagar; in all *Rs.* 525,817,058. The copper coins issued from the Calcutta and Bombay mints were quarter and half anna pieces. For very small payments, cowries (*cyprœa moneta*) were in use, but by 1834 they had ceased to be imported, and had been nearly superseded by the copper pice. They are still, however, made use of for fractional payments, 400 cowries being equal to one anna.

The foundations of the Calcutta mint were laid in 1824, and it was completed in 1830. The Bombay mint was also completed in the same year; and the coinage of silver was commenced at the Madras mint in 1841. But the Madras mint was closed on August 31st, 1869. By Acts XVII. and XXI. of 1835, a new coinage was introduced. By Act XIII. of 1836 the *sicca* rupee was declared not to be legal tender after January 1st, 1838, but was to be received by weight, subject to a charge of 1 per cent. for re-coinage. For silver coinage the Company's rupee was substituted, with double, half, and quarter pieces, the rupee being of 180 grains (165 pure). For gold coinage the gold mohur or 16 rupee piece also of 180 grains (165 pure) was established, with 30, 10, and 5 rupee pieces; and the copper coinage was to be a copper pice of 100 grains, with a double pice and pie; the pice being only legal tender for fractions of a rupee. These were the only coins to be struck at the Company's mints, and the coinage of India has not since been altered. In 1843 measures were taken to displace all silver currency except the Company's rupee; for the native States continued to exercise their right to coin money, which caused some incon-

venience. Gold coins have practically ceased to be in circulation. In the year 1872-73 the quantity of bullion received for coinage at the Calcutta mint was 810 lbs. troy of gold, 112,857 lbs. of silver, and 101 tons of copper. The importation of the precious metals has decreased very sensibly, the amount of gold imported into Calcutta being less by 322,134*l.*, and of silver by 2,583,218*l.* The total import of gold in 1872-73 amounted to 844,842*l.*; and of silver to 2,583,218*l.*; exports of gold 16,368*l.* and of silver 59,612*l.* The gold imported into Bombay was 1,345,740*l.*, and of silver 1,444,780. At the Calcutta mint there were coined 23,254 gold mohurs, 7,788,695 rupees and 938,376½, 913,625½, and 808.87 rupees worth of half, quarter rupee, and two anna pieces; also 984,424 copper pie pieces, and 18,000,000 Ceylon cents. The latter item accounts for the large receipt of copper. At Bombay no gold and no copper was coined, but 28,095,600 rupees, 552,800 half-rupees, 338,500 quarter-rupees, and 362,800 two anna pieces. It is estimated that the coin in circulation, being calculated from the actual British coinage for the last 25 years for all India, is represented by 16,200,000 rupees worth of gold mohurs, 1,580,000,000 of silver, and 29,600,000 of copper. It is also believed that there are 10,000,000 sovereigns in India, as they are found in every village in the Bombay Presidency, where there is a special demand for the St. George and Dragon sovereigns of George IV. and the later Victorias, for religious purposes. Gold is mainly used for hoarding and ornament.

At about the same time as the currency was fixed, Chartered Banks were established at Calcutta, Bombay, and Madras. The Chartered Bank of Bengal was constituted by Act VI. of 1839, with a capital stock of 75 lakhs, with power for further increase, 275 shares (11 lakhs) being the property of the Government. The nine directors were to be nominated, six by subscribers and three by Government. The Chartered Bank of Bombay, by Act III. of 1840, was to have a capital stock of not less than 50 nor more than 56 lakhs, three lakhs being Government property, and two out of the nine directors being appointed by the Government. The Madras Chartered Bank was formed by Act IX. of 1843. It was to have a capital stock of 30 lakhs, three being the property of Government, and three out of the nine Directors were to be appointed by the Governor of Madras in Council. These Chartered Banks, previous to 1861, issued a limited circulation of notes, confined almost exclusively to the presidency towns; and the great financial measure, with a view to a more general paper currency throughout India, is due to Sir Charles Wood.

The introduction of a paper currency dates from 1861. India had been steadily draining Europe of silver bullion at the rate of 10,000,000*l.* a year; the circulating medium was silver, and there was an incessant transmission of large remittances to and fro over the length and breadth of the land. The great expense and inconvenience of carrying about heavy packages of silver rendered the introduction of a paper currency a measure of no small consequence to the welfare of the people of India. Mr. Wilson originally proposed the adoption of this measure in a Minute dated 25th December, 1860. But his scheme received some modification in the Act to provide for a Government Paper Currency (XIX. of 1861), which was passed when Mr. Laing was Financial Member of Council. A Department of Issue was established for the issue of promissory notes, payable on demand, for sums not less than ten rupees. Mr. Wilson intended to have issued notes as low as five rupees. The head commissioner of the Department of Issue is the master of the mint at Calcutta, and the master of the Bombay mint is also a commissioner. Circles of issue are established, each with a chief town as a centre or place of issue of notes, with subordinate agencies of issue within the circle. The head commissioner provides the promissory notes, which are issued at the different centres in exchange for silver, or for other notes; and the whole amount of the bullion or coin so received for notes must be retained as a reserve, with the exception of such an amount, not exceeding four crores of rupees, as the Government may from time to time fix, the amount so fixed being invested in Government securities. The notes are deemed to have been issued on the security of silver received for them, of the money invested, and of the general credit of the Government. The promissory notes are legal tender within their respective circles. A short Act (I. of 1866) was subsequently passed, altering the conditions on which persons tendering bullion or foreign coin were to receive promissory notes in exchange. In the first Act it was provided that such persons might be required to pay the expense of melting and assaying such bullion or foreign coin. The new Act entitled them to receive a certificate acknowledging the receipt, and the value, after deducting the expense of melting and assaying, and

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also stating the interval on the expiration of which the holder shall be entitled to receiving notes in exchange. In March 1862 an agreement was made with the chartered banks, to continue in force for five years, which provided for the issue and payment of the currency notes, through their agency, and for the establishment of branch banks with the same object. The notes are of 5, 10, 20, 50, 100, 500, and 1,000 rupees; and up to 1867 ten circles had been established at Calcutta, Allahabad, Lahor, Nágpur, Madras, Calicut, Trichinapalli, Vizagapatam, Bombay, and Karáchi. The amount of notes to be issued was not to exceed 4,000,000*l.* beyond the bullion held in deposit; but in 1870 the limit was raised to 6,000,000*l.* In 1866 the circulation of these notes had reached to over 10,000,000*l.* Since that time the demand for notes has steadily increased. In Bengal the value of notes paid into the treasuries in 1872–73 was 3,000,000*l.*, and of those paid out 2,500,000*l.*, which largely exceeds the total of the previous year. Small notes were in great demand in the interior, while large notes travel back to Calcutta. The notes are cashed as freely as possible at all the treasuries, and are really passing into circulation. In the North West Provinces there has also been a considerable increase in the circulation of the currency notes. From May 1872 there was a steady monthly increase up to the end of March 1873. 1872-73 was the first year of issue of the five-rupee notes, which met with a favourable reception, 18,590 having been issued during the year. This shows that paper currency is not only used as a medium of exchange in remittance, but that it is applied to the ordinary transactions of daily life and petty trade. The tendency to make use of Government paper is reported to be gradually gaining ground among the people of the North West Provinces; 414,633*l.* worth were in circulation in March 1872, and 1,285,215*l.* in the end of March 1873. Of this 676,026*l.* worth were in the hands of the public, against 222,302*l.* worth in 1872. In the Madras Presidency there has been a marked progress in the issuing and cashing of notes of the treasuries during 1872–73, and in the Calicut and Cocanada circles there has been a considerable and extended increase in their use, throughout the year under review. In Bombay there was an increase of 341,000 notes received and issued, over the previous year; and in Sind, the five-rupee notes are reported to be a great convenience, and to be freely used by the people. The currency notes are acquiring the ready confidence of the public; and this measure, which was first worked out by Lord Halifax, has, in a very great degree, promoted the convenience and commercial welfare of the people of India.

III.

LAND REVENUE.

THE Land Revenue of India is a branch of the Administration which is so closely connected with the every-day life of the people, and so important in its political, as well as in its merely fiscal bearings, that it can never be treated like salt and customs, as a mere item in a financial account. The welfare and contentment of the people depend upon the wise adjustment of the demand on the produce of the land; and the difficult questions relating to land revenue have always required the most close and careful attention from Indian statesmen.

The famous measure of Lord Cornwallis, by which the amount of the Government demand on land, in Bengal, Bahar, and Orissa, was declared to be permanent, has necessarily had an enduring influence upon the districts that were effected by it. These districts are suffering from one of those terrible visitations with which parts of India are periodically afflicted, and the working of the permanent settlement is now therefore, a matter of special importance. As it has influenced the well being of a vast population during the greater part of a century, so it must be a main feature in the consideration of measures by which future calamities, like the present famine, may be met and averted.

A decennial settlement was commenced in 1789 and completed in 1791, the assessment for land revenue in Bengal, Bahar, and Orissa being fixed at 2,858,772*l.*, and this settlement was declared to be permanent in 1793.

For the full comprehension of this measure it is, in the first place, essential to bear in mind the exact area over which its influence extended. The Bengal of those days comprised the present divisions of the Presidency, Rájsháhi, Chittagong, and Dacca, with parts of Hazaribagh and Maunbhum, now in the Chota Nágpur division, and of Julpigori and Kuch Bahar. Bahar comprised the Bhagalpur and Patna divisions; while Orissa did not include any part of the present division of that name. The term, in those days, meant only the tract of country between the Rupnarain and Subanrekha rivers, now included in the district of Midnapur.

The importance of attending carefully to geographical limits, in the consideration of questions relating to administration, is very strikingly shown with reference to the Bengal permanent settlement. It has been seen that the original assessment, which was declared to be permanent in 1793, amounted to 2,858,772*l.*, yet it is now 3,520,886*l.*, an increase of 662,114*l.* The causes for this remarkable enhancement cannot be fully explained, owing mainly to the neglect of a systematic record of changes in geographical limits. Out of the whole increase of 662,114*l.*, Bahar yields as much as 404,096*l.*, and in this province all the districts have frequently contracted and expanded, while three new ones have been formed; and the records of changes are incomplete.

The primary object of the permanent settlement of 1793 was to record all rights to the land. The Regulation (XII. of 1793) provided that there should be a general register of estates, and of intermediate mutations, and every fifth year the original register was to be re-written. All zemindars were required to maintain *patwaris* or village accountants, who were to file their accounts with *kanungos*, or officers appointed by Government, one for each estate, or *parganah*, to keep the public accounts and receive returns and registers. The zemindars, or great landholders, had their rent charge permanently fixed, but there were also general provisions in favour of the tenants, and the theory was to give all under-holders the same security of tenure as against the zemindars, which the zemindars had as against the Government. The zemindars were bound to specify, in writing, the original rent payable by each ryot; the ryots were entitled to a renewal of their *pattahs* or leases, at established rates, and the zemindars had no power to cancel them.

But in the working of the permanent settlement between 1793 and the present time many of the provisions of Regulation XII. have been neglected, others have been altered, and the intentions of its framers have been departed from very materially.

The zemindars, with whom the settlement was originally made, were for the most part powerful men, whose authority extended over a wide tract, and who had police and other functions entrusted to them. But, under the influence of debt and mismanagement, these large zemindaris were speedily broken up. There was wide-spread default, and consequent sales for the recovery of arrears, and within ten years from 1793, there was a complete revolution in the ownership of estates. In order to

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ensure the payment of the Government demand, it was thought desirable to enable the zemindars to realise their rents more readily. In 1799 they were invested with greatly increased powers over the ryots, whose persons were allowed to be seized in default; and in 1812 further powers were given them to distrain the property of ryots; so that, for some fifty years of the present century, they exercised powers over the ryots, far greater than those given them by the Regulation of 1793. Those parts of that document which gave rights and privileges to the zemindars have been stretched to the utmost, while those parts which restrained and limited their rights have been utterly set at naught. Many illegal cesses have also been habitually levied by the zemindars, while the Government more and more gave up the functions of recording the rights that were created after 1793, and extensive tracts were leased out on long terms. In 1819 these permanent alienations had been so extensively effected that they were legalised by Regulation VIII. of that year, when means were afforded the zemindars of recovering arrears from their patnidars. The practice of granting these under-tenures has steadily continued, and now but a small proportion of the whole permanently settled area is in direct possession of the zemindars. The holders of *patnis* and *izars* have again created lower gradations of sub-tenures in great numbers, and there are even further subordinate tenures, besides older fixed and transferable under-tenures which existed before the settlement of 1793, when their permanent character was recognised.

The powers given to the zemindars over the ryots, in 1799 and 1812, nullified the clauses of the Regulation of 1793, which protected the inferior holders, leaving everything to the judicial tribunals. Regulation I. of 1819, indeed, established the kanungos, and defined the position and duties of patwaris; but the kanungos ceased to exist everywhere but in Orissa, and the patwaris fell into disuse, or became the mere servants of the zemindars. Hence the registers have never been kept up in such a way as to be really useful. They do not show who the zemindars are, and give no information at all respecting the under-holders or ryots.

Yet many permanent under-tenures, known as *patni* and *iza* tenures, were withdrawn in 1859, when the whole rent law was rescinded by Act X. of that year. This law reduced the powers previously exercised by the zemindars, while it increased the grounds of enhancement and afforded the remedy of a summary process before the Deputy Collectors. Rent suits are now transferred to the Civil Courts, where there is difficulty in quickly realising undisputed rents by legal process.

The result of the permanent settlement has been a great multiplication of the number of estates, with corresponding reduction in the average area. In 38 districts, out of 154,200 estates on the public books, 533 only are great properties with an area of 20,000 acres and upwards; while 137,900 contain less than 500 acres. The partition of estates has been partly voluntary, and partly to bring portions to sale for arrears or debts; and the transformation has been so complete that it is almost impossible to establish points of identity between the lists of 1793 and those of 1872. The average annual number of sales of whole estates during the last ten years has been 686.

It has been the aim of Sir George Campbell, during the term of his Lieutenant-Governorship, to register and recognise patwaris throughout the Lower Provinces, to restore the kanungos where they had ceased to exist, and to ensure the due registration of the rights of ryots, as was contemplated by the Regulation of 1793. He has found, in the provisions of the Road Cess Act, an instrument by means of which an efficient register of tenures in Bengal may be secured. This Act provides for the valuation of properties, and thus involves a record of tenures and rents such as has never before been made in Bengal. These valuations have been most successfully conducted, and registers have been compiled of all the zemindars and sub-tenures, and of the rent paid by every ryot, in each of the nineteen districts to which the Road Cess has been extended. The returns are compiled into intelligible tables which show the facts of each district; and already the ryots, in many Road Cess districts, have come forward to take extracts from the returns relating to their holdings and rents. These returns are the first authoritative records ever framed in Bengal, of the rents payable by ryots over any large area of country.

The sales of estates, which come into the hands of the Government from default of payment of the demand, are suspended pending a full inquiry into the minor tenures, and until all rights have been recorded. Many landed estates also come under Government management from being owned by persons disqualified on account of sex, age, or mental incapacity; and these estates of wards are intended to be the

models of what well-managed estates ought to be. There are now 104 wards' estates under management, some with very large rentals. The sale of Government estates was stopped until the receipt of a report from the Board of Revenue regarding the effects of the sale system on the well-being of the people, as shown by the position of the ryots on the land after it was sold. This report had not been received, and no Government estates were sold during the years 1872-73. But, meanwhile, all collections on Government estates are made through the village headmen, and on large estates through a *tahsildar*, or officer who collects directly from the headmen. Thus the question will probably settle itself, through this new system of settling direct with the ryots or tenure holders; for when such settlements are made there can be no occasion to sell the estates.

During the year 1872-73 some agrarian disturbances broke out in the Isufshahye Pargana of the Pabna district (Serajganj Sub-Div.), at the confluence of the Ganges and Brahmaputra. The zemindars attempted irregularly to effect a large enhancement of rent, both by direct increase and by the consolidation of rent and cesses. The ryots yielded at first, but soon began to organize themselves for systematic resistance into what they called *bidrohi* (union) under a petty landholder, their demands being a very large *bigah* of measurement and very low rent. Large bands of villagers were formed. On July 4 the Lieutenant-Governor issued a proclamation requiring the ryots to disperse, and to prefer peaceably any grievances they might have. About 300 persons were arrested and tried for rioting and illegally assembling, of whom 147 were convicted. There was no more rioting, but the union movement has spread, and it appears that these local ryots' unions are quite common in Eastern Bengal.

With the exception of Midnapur, the survey of Bengal proper is now complete. It was commenced in 1835 in Chittagong, in 1836 in Monghir, in 1838 in Cuttack, Puri, Balasor, Gaya, and Bhágalpur, and in 1841 in Patna, and was completed in Hugli in 1872. Most of the districts are surveyed so as to show the boundaries of each village and each estate, on a scale of 16 inches to the mile; but, except in a few limited tracts, there are no field measurements. All disputes regarding boundaries are decided by the demarcation officers. When a whole village belongs to one estate, only the outer boundary is surveyed; but when a village contains the lands of more than one estate, each separately-owned plot is surveyed. In Hugli 4,000 village circuits are demarcated; in 1,000 the whole village forms one estate, while in the other 3,000 interior measurements were necessary, and 80,000 plots had to be surveyed, owing to the intermixture of the lands of different estates. Demarcation is followed by a professional survey, comprising a scientific survey of village boundaries, and the insertion of geographical and topographical features. The great defect in the Bengal revenue survey is the absence of permanent marks. By Act IX of 1847 the survey of alluvium and diluvium along the banks of rivers was provided for. It was commenced at Patna in 1863, and completed in Rájsháhi in 1872. Large portions of land were often washed away, sometimes suddenly and sometimes by slow degrees, from one side of a river to another. Those who suffered from diluvium were allowed an abatement of revenue, and those whose estates had gained land were assessed in proportion. This survey should, in future, be made at intervals of ten years.

The present Orissa division does not correspond with the district of the same name which came under the permanent settlement of 1793, as has already been explained. Orissa proper, conquered by the Moguls in 1580, lies between the western mountain tracts and the Bay of Bengal. It consists of sea board plains, and of encircling hills, where Orissa chiefs formerly maintained semi-independence. The hill tracts were called Rajwara. Midnapur and part of Hugli, acquired by the Company in 1760, is the Orissa of the permanent settlement. The true Orissa, including Balasor, Cuttack, and Puri, was not taken by the English from the Mahrattas until 1803.

The Mahrattas imposed on the hill Raja of Khurda, and all the subordinate feudal chiefs or khundaits, a quit rent, which was often levied by force. The English recognised the right of the Raja of Khurda and all the principal khundaits to hold their estates at permanent quit rents; while the remainder were left in the position of semi-independent tributary states. But the Khurda Raja rebelled and was dispossessed, and ever since his estate has been held under direct Government management, the Raja receiving a pension. The other large estates were permanently settled at fixed rates.

The permanent settlement was not, however, extended to the rest of the province

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There were 10 short temporary settlements between 1803 and 1837, and a 30 years' settlement was concluded in the latter year, which expired in 1867. It was then renewed, without alteration, for another 30 years. This Orissa settlement of 1837 was based upon a careful field measurement, and upon an investigation into the individual rights of each landholder and under-tenant. This was a work of great labour, and occupied eight years. The system was to settle the revenue payable by each of the ryots, and then to give a settlement to a superior landlord, who collected the revenue from them. The revenue from the 30 years' settled tracts is 133,672*l.*

In Assam the settlement for land revenue is made annually with each cultivator, who is assessed for the land actually occupied by him. The revenue is satisfactorily and punctually collected by mouzadars, or native village officers, who receive a commission on their collections. The revenue for 1870–71 was 209,337*l.*

The rules respecting the sale of waste lands belonging to the Government apply to tracts in the Sunderbuns, the uplands of Chittagong, the Himalayan terai, Assam, and Cachar. The old Assam Waste Land Rules, promulgated in 1854, allowed grants to be made for 99 years; a quarter of the area of each grant being rent free in perpetuity, and the rest being free for 15 years. There were certain conditions respecting clearance within a specified time, and if not complied with, the grants were to be resumed. No grant was to be of less area than 500 acres, and a sum was to be deposited to provide for proper survey. In 1856 these rules were extended to Cachar and Silhet. But after the mutinies there was an outcry for grants in fee-simple, and against the clearance conditions, which had an effect upon the Government. In his Minute, dated October 17, 1861, Lord Canning laid down three main principles on which grants of waste lands were to be made. The first was that grants should be in perpetuity as heritable and transferable property, subject to no enhancement of land revenue assessment: the second, that all prospective land revenue should be redeemable at the grantee's option by a payment in full, either when the grant was made, or gradually: and the third, that there should be no obligation to cultivate or clear any specific portion within a specified time. The minimum price for the fee-simple was to be 5*s.* per acre, and by paying 10 per cent. (6*d.* per acre) a title was to be obtained. The Secretary of State subsequently added two further requirements, that every estate should be surveyed previous to the sale, and that all sales should be by auction to the highest bidder, above a fixed upset price. Rules for the sale of waste lands in the Sunderbuns were issued in 1863, and for Darjiling in 1859.

In making grants of waste lands many abuses have been allowed to creep in. In 1864 there was agitation against the sale of lands by open auction, and the Government was induced to allow land to be taken up on leases of 30 years for tea cultivation; without any efficient provision for survey, or for the protection of native interests. Then there was a great rush of speculators in tea planting, who bought Government wastes upon credit wherever they could get them. In many cases the Government officers relaxed the rules as to surveys; and large areas were sold to jobbers, who transferred them at a profit, or threw them up altogether. Cultivated lands not regularly settled, in some instances, were sold as Government waste lands, over the heads of the native occupiers.

As a remedy for these evils Sir George Campbell has published some *ad interim* rules, by which no more lands are to be sold, free of revenue, without the previous sanction of the Government of India, except for gardens or buildings not exceeding 10 acres. But the whole question is still under consideration.

In March 1873 the Lieutenant-Governor submitted a set of rules for approval by the Supreme Government. They provide that Government may sell land outright for tea cultivation, so long as the rights and claims of cultivators and ancient inhabitants are respected, as well as rights of way and user. No single plot exceeding 1,500 acres is to be put up for sale, and a previous survey is to be obligatory. The sales are to be by public auction, the upset price in the Sunderbuns being *Rs.* 5 per acre, in Assam *Rs.* 8, in Darjiling *Rs.* 10: the unculturable part being sold at one half. The final Draft Rules were submitted to the Government of India on the 31st of October 1873, and will shortly receive sanction.

The principal settlement of the land revenue of the North West Provinces was made between 1834 and 1842, generally for 30 years, so as to terminate between 1864 and 1872. A renewed settlement has now been in progress for several years; but the revision has not yet been finally sanctioned in any district. The sanction of Government for the new settlement in the different districts will be

given during the next and following years, so that the present is a convenient time for giving a short general sketch of the principles upon which these settlements are based.

The first regular settlement of what are now called the North-West Provinces was commenced by Shir Khan, and completed by the Emperor Akbar. Correct accounts of the boundaries of each village were drawn up, the cultivated and uncultivated areas were measured, the land was divided into classes with reference to the description of soils, and each field was assigned to one class or other. The average produce of each class, and the average price of grain was then ascertained for 10 years, and one-third of the average gross produce was taken as the rent. But the leading principle of Akbar's settlement was that the Government held the village community, and not each individual cultivator, responsible for the payment of the rent.

When the North West Provinces became British territory a proclamation was issued on the 14th of July 1802, afterwards incorporated into Regulation XXV. of 1803, according to which there was to be a triennial settlement from 1802 to 1805, another from 1805 to 1808, and a quartennial settlement from 1808 to 1812. At the expiration of the above ten years, it was declared that there would be a permanent settlement concluded with the same persons (if they were willing to engage, and if no others having a better claim came forward) for such lands as might be in a sufficient state of cultivation to warrant the measure, on such terms as the Government should deem fair and equitable.

By Regulation VII. of 1822 there was an attempt to ascertain the amount of the State demand, by a calculation of the gross produce, the cost of cultivation, and the net yield of every field. But it was found impracticable to carry out this system, and for ten years it remained ineffective. By Regulation IX. of 1833 Lord William Bentinck decided that the settlement should be based on the rents actually paid, and it was commenced on that principle. Mr. R. M. Bird carried it through during the next nine years, and by 1842 it had been completed in all the districts.

Mr. Bird was at first only interested in the improvement of the judicial machinery, and the various arrangements of the settlement were not originally intended as machinery for the accurate ascertainment of the resources of the land. Their first object was the framing of a record of the several interests of those who held their lands in common, and of the rights of cultivators; and Mr. Bird was induced to enter upon the investigation by the conviction that the judicial tribunals were unequal to the ascertaining of those rights, and to the protection of those who possesssed them. He undertook the duties of a revenue officer only with the view of perfecting these plans for the good of the people, and because he was convinced that practical operation might be given to the rules contained in Regulation VII. of 1822. His principle was that the assessment of a fair and moderate revenue on the land might be so combined, with an ascertainment of private rights of the village communities, that such records might be framed, such principles fixed, as would correct the evils which, at that time interfered with agricultural prosperity.

The principle of the settlement was to take two-thirds of the rental as Government revenue, leaving the remaining third, and all future increase during the term of settlement, to the proprietors. It will be remembered that Akbar took the whole rental, and recognised no proprietor but the State. In this lies the main difference between his system and ours. The proprietors recognised by the settlement were not always the village communities, but in many, if not in most cases, they were intermediate persons, who succeeded in establishing claims to the rent. The tenure by village communities or brotherhoods is called Bhyacharah; but this tenure exists in the smaller proportion of the whole number of villages in the North West Provinces. The most common tenure is that where a village belongs to a family, the cultivators being tenants of all the family as a body. The Government settlement is made with the proprietors for each village or township.

The first operation is the demarcation of the village boundaries, and the ascertainment of its total area, and the next is the interior measurement of fields by rod and chain. Each field is registered with the name of the cultivator and proprietor, its dimensions and area, the nature of the soil, and the rent. A list of cultivators is made out, showing what each holds, and what rent each pays, and another list is made out of the proprietors. An administration paper of each village is then drawn up, showing how the revenue is to be distributed and collected, what are the relations between proprietors and tenants, and the remuneration of village officials. Kanungos, or district accountants, are then appointed by the Government, and patwaris, or village accountant, by the landholders.

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The first settlement, for 30 years, was completed in 1842. It included 80,883 townships, and an area of 71,985 miles; and the revenue demand was fixed at 4,052,992*l.* including the permanently settled province of Benares. The rate per acre on cultivation was 3*s.* 6*d.* The population affected by the settlement was 23,199,668.

Mr. Thomason, one of Mr. Bird's assistants, administered the system for 10 years (1843 to 1853) as Lieutenant-Governor of the North West Provinces. The collectors of each district have under them an efficient native executive staff, consisting of tehsildars, eight or ten to a district, who superintend sub-divisions, and enable the collectors to exercise a minute control over the affairs of the district.

The 30 years of the first settlement were interrupted by the Drought and Famine of 1837-38, the Mutiny of 1857, and the Famine of 1860-61. The latter visitation gave rise to a long discussion on the advisability of introducing a permanent settlement into the North West Provinces. The Famine of 1837 was more severe than that of 1861, although there was heavier pressure from drought in the latter year, and the reason of the power of the people in the latter year to pass through the ordeal with far less suffering, was believed to be the creation of a vast mass of readily convertible and easily transferable agricultural property. This state of things was the direct result of the limitation of the Government demand on land for the long term of 30 years, and the careful record of individual rights. The settlement had introduced moderate assessment, minutely recorded and easily understood titles, long leases, and the guarantee of enjoyment of all profits during the currency of such leases. Land thus obtained an increasing marketable value, which as a security was largely made use of in mitigating the pressure of the famine. Such being the result of the fixity of the public demand for 30 years, it was argued to perpetuate these results, the public demand on land should be fixed for ever. These arguments were urged by Colonel Baird Smith in his Report on the Famine of 1860–61, and by Mr. Patterson Saunders in his account of the cotton districts of the Doab. Sir William Muir, who was then (1861) a member of the Board of Revenue, was also in favour of a permanent settlement, his advocacy being based on the assumption that, in future settlements, the revenue would not materially vary from the then amount. But he never advocated a limitation of land revenue in perpetuity, under circumstances which would gratuitously sacrifice the interests of the Government. His view of the benefits of a permanent settlement were the saving of expenditure now incurred by the periodical assessments; the deliverance of the people from the vexations prevalent at every re-settlement; the freedom from the tendency to deterioration of property towards the close of each temporary settlement; the prosperity arising from increased incentives to improvement and expenditure of capital; the increased value of landed property; and the content and satisfaction among the people. Thus a strong feeling arose in favour of a permanent settlement. In a dispatch dated July 9th 1862, the Secretary of State for India announced a deliberate intention to grant, under certain conditions, a permanent settlement of the land revenue demand in the North West Provinces. A long official discussion on the subject was carried on between 1862 and 1868. The Government never appear to have intended to introduce a permanent settlement over a wide extent of country, but to limit it to particular estates under certain conditions. The proposal was to calculate the proportion between cultivated and fallow land on an estate, and where the cultivated area exceeded a fixed ratio, to grant a permanent settlement, withholding it from estates where that test failed, until the required proportion was reached. This method was resolved upon as a precaution against "undue sacrifice" of the Government revenue; and Sir Charles Wood, in a Despatch dated 24th March 1865, ordered that no estates of which the actual cultivation amounted to less than 80 per cent. of the cultivable area was to be admissible to a settlement in perpetuity. This decision was repeated in a despatch from Sir Stafford Northcote, dated 23rd March 1868; and another provision was added, namely, that no permanent settlement should be concluded for any estate to which canal irrigation was likely to be extended within the next 20 years.

But Sir William Muir, when he became Governor of the North West Provinces in 1868, considered it necessary to re-open the question. He found a difficulty in applying the prescribed rules for a permanent settlement to the pargana of Baghpur, in the Zillah of Matra, where the standard of rent, from various causes, was greatly below that prevailing elsewhere. At the same time there was an extraordinary and sudden rise of rent in Bulandshahr. He therefore represented that the two conditions

enjoined by the Secretary of State were not sufficient, and that a third ought to be added, namely, evidence that the standard of rent prevalent is adequate, and not below the level of rent throughout the country at large.

During the year 1872 the question was again referred to the most experienced settlement officers of the North West Provinces; and most of the highest Indian authorities have now expressed their views on the subject. The general inclination of those who are in favour of permanency is in the direction of a settlement, not upon the basis of a fixed money assessment, but of the value of produce according to the average prices which prevail. This was the view of the late Sir Donald McLeod, Lieut.-Governor of the Punjab. Before he left India in 1870, he recorded his opinion against the introduction of a permanent money settlement. He considered that it would be a mistake to declare permanent the money assessment of any land whatever, because money is an unreliable standard of value. Fifty years hence, if the demand assessed upon land represents but half the real value it did when first fixed, it will be a matter of the utmost difficulty to find other sources from whence the enormous deficit can be supplied, and the effort to realise it will be attended with exceeding danger. But Sir Donald added that if, instead of using a cash standard, we were to employ some other standard supplying a correct measure of the increase of value, such as the value of labour and the price of corn, he would be entirely in favour of permanency of settlement, wherever the cultivation had attained to the required proportions. The Madras Government have been in favour of a similar system. Between 1856 and 1870 they urged the advisability of imposing a permanent grain rent, with a changing money rate; but were unable to obtain the sanction of the Secretary of State to the carrying out of their views.

Sir William Muir placed his own final views on record on March 2nd 1874. He believes that in future there will be a great rise in rent, caused by the slow but certain influence of a rise in prices, and other causes; and, with a view to a settlement of the question, he proposes a plan which was suggested by the code of procedure in the Bombay Presidency. It is there laid down (*Act I. of* 1865, *sec.* 30) that revised assessments of land revenue shall be fixed, not with reference to improvements made by the owners, but to general considerations of the value of the land as to soil, situation, prices of produce, and facilities of communication. This principle of respecting improvements made by owners is, as a rule, lost sight of in the North West Provinces. Sir William Muir suggests that, under favourable circumstances, the claims of Government might be met, at a future period, not by a revision of the settlement, but by the imposition of a rateable increase. The district where such a system is introduced must have been in a fair state of development at the time of the settlement, which must have been carefully and uniformly made. Under these circumstances, if the letting value of the land has advanced 12 or 15 per cent. since the last settlement, the Government claim might be met simply by a rise of 10 per cent. in the land revenue. By this plan two advantages would be secured. The exertions of landlords would be encouraged, and the demoralization from a sudden alteration of the landlord's income would be avoided. These suggestions are intended for future consideration, and meanwhile Sir William Muir would confirm the present revised settlements for thirty years.

The Famine of 1861 led to this long discussion of the permanent settlement question, which is not yet concluded. Another very important event during the currency of the first settlement of the North West Provinces was the passing of Act X. of 1859, to amend the law relating to the recovery of rent. By this Act every cultivator is entitled to a potta, or legal document, containing the amount of annual rent to be paid to the proprietor; but the proprietor is empowered to raise the rent at the expiration of the period stated on the potta, by serving a written notice. The grounds on which the different classes of cultivators are liable to enhanced rent are stated in the Act, and the proprietor is empowered to enforce his claim in a court of law. The State now takes a clear half of the landlord's rent as the Government demand. But the landlord's moiety is by no means a clear income to him. About 20 per cent. is deducted to pay the Government cess, the *patwari's* salary, *lumbardar's* fees, and on account of unrealizable balances and miscellaneous expenses.

The new settlement of the North West Provinces has necessitated a repetition of all the elaborate processes which were introduced by Mr. Bird in 1832: measurement, inspection, assessment, preparation of records, and decision of claims. Almost all the records were destroyed during the mutinies. During the 30 years of the old

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settlement, the proprietors effected considerable changes in the rent rates, while the Government demand of two-thirds of the rent remained the same. In the new settlement, the Government demand has been reduced to one-half the rent; but the settlement officer has to discover the extent to which the rent rates have been modified by competition and increased prices, and by the rent law (Act X.) of 1859.

The settlement of 10 districts was completed before the beginning of the year under review, namely, Dehra Dun, Saháranpur, Gorakhpur, Busti, Jhansi, Lalatpur, Bulandshahr, Budáon, Bareli, and Garh wal. In the case of Muzaffarnagar, a doubt was raised as to the sufficiency of the rates fixed, and a revision was ordered. This revision has effected an increase in the Government demand of 30 per cent. The measurements were completed in 13 districts, and the work of inspection was brought to a close in six. The revised assessments have resulted in a very considerable increase of land revenue, notwithstanding the Government share of rent being reduced to one-half, instead of 66⅔ per cent. The increase is due to reclamations of waste land, to improved modes of cultivation, and also to rises in rent. The actual net increase of revenue up to March 1872 is 282,631*l.* or 13 per cent. on the land revenue assessed. The revision of settlement has been going on for 18 years, and there are now only four districts, Murádabad, Agra, Humirpur, and Banda, in which the former settlement had not expired on 1st April 1872. Those of Murádabad and Humirpur expired on July 1st 1872. In Etáwah and Matra it came to an end in July 1871.

An important change has been made in the manner of conducting the village surveys, which are the foundations of the settlement operations. Instead of the old method by means of measurements of fields by native *amins*, checked by an accurate survey of village boundaries, there is in future to be a cadastral survey on rigorous principles, in every detail, such as exists in Madras. The settlement maps were sufficient for the purposes for which they were primarily intended; but they could not be used in compiling a district map, nor could they pretend to the same scientific accuracy as is obtained by the adoption of correct principles of surveying. The Government of India, therefore, resolved to have the field surveys, as well as the village boundaries, executed by the Surveyor-General's Department, and thus to place the whole operation under one head, and to introduce a cadastral survey such as is executed in the countries of Europe and in Madras. In 1871-72, the cadastral survey of Mattra, Humirpur, and Murádabad was accordingly made over to parties of the regular survey, and Agra was added in 1872-73. By this measure there is a saving of labour, for work was formerly done twice over to some extent; the surveys become most useful for general purposes; and the cost is in no way out of proportion to the increased value of the work. In Murádabad the settlement officer has expressed himself well satisfied with the success of the experiment of making over the measurements to the revenue surveyors, and he considers that it will lead to the settlement work being more expeditiously done.

The Government demand is now fixed at 50 per cent. of the assumed rental, and an additional 5 per cent. is taken in the form of a cess for local purposes of education, roads, police, and other objects of general improvement. But, by a recent despatch from the Secretary of State, a change has been made with regard to the settlement of the cesses, for, while the amount of the land revenue is fixed absolutely for the period of the settlement, the amount of cesses is declared to be open to revision, from time to time, at the discretion of the local Government. Judging from the districts already settled, it is calculated that the rent rolls of the province have increased by 52 per cent. since the first settlement, by reason of extension of cultivation, enhanced prices, and competition.

A very important fact in connection with the agricultural prosperity of the provinces has been brought out by the new settlement. As much as 74 per cent. of the assessable area of the districts hitherto surveyed is actually under cultivation. Mr. Bird's opinion was that one-fifth of the cultivable land should always be left untaxed, to allow for raising artificial grasses or other fodder for cattle, and for fallows. This margin has long been encroached upon in many districts, so that very little increase of revenue can be expected to arise from further extension of cultivation. Hence, if the Government raises its demand on the land, the proprietor can only meet the enhanced demand by raising his demand for rent. Here, then, will the great difference between the system of the Emperor Akbar and that of the English, be made practically apparent. Akbar recognised no proprietors, and the rent was the Government demand. We have created a body of proprietors with powers, which none but the Government ever claimed before, over the original

occupants of the land. Thus the process of raising rents, aided by our law courts, may give rise to much strife and discontent; yet the revenue cannot be raised further than the rents have as yet risen, without the danger being faced of a general rise of rents. To remedy this evil, it is proposed to pass an Act enabling the settlement officer, when he raises the revenue, to raise the rent also. It is said that the powers given by Act X. of 1859 are not now largely used by the proprietors to raise rents, but they have the power and may, at any time, begin to use it. During the year 1870–71 there were 60,405 suits instituted under Acts X. of 1859, and XIV. of 1863; of which 34,516 were for arrears of rent, 4,812 to eject cultivators, 3,025 to recover occupancy, and 2,468 complaints of excessive demand of rent. The evil will be remedied by an Act that became law on November 24th, 1873. By this Rent Act all rent suits are to be heard in future in the Rent and Revenue Courts only, and not in the Civil Courts. Suits for the enhancement of rent are to be tried only by officers of experience specially empowered for that purpose by the Government. Decrees of enhancement are not to be given against cultivators with occupancy rights oftener than once in 10 years. The rights of a proprietor in land are distinguished from the rights he acquires as a cultivator in the fields he cultivates, and in future the sale of the former for debt will not involve the loss of the latter. The ex-proprietor, instead of becoming a homeless outcast from his ancestral village, will only sink into the position of an occupancy tenant of his hereditary fields, holding them at favourable rates. Another very important Act, which also became law in November 1873, is a codification of all the laws relating to the assessment and administration of the land revenue. A fuller exposition of the contents of these Acts will be given in the Report for 1873–74.

After the annexation of Oudh in 1856 a settlement was made village by village. The object was to deal with actual occupants of the soil, called village zemindars, or with proprietary co-partners, and not to suffer the interposition of middlemen. The claims of the tálukdárs, or great landed nobility, were to be considered at some other time. But it was a mistake to assume that the tálukdárs were only middlemen employed to collect revenue. They formed, to a great extent at least, an old landed aristocracy possessing undoubted rights of property in the soil; and two-thirds of Oudh (23,500 villages) were in their possession at the time of the annexation. Yet the assumption that they were interlopers, with no rights of property, was acted upon in the extremest manner. The Maharaja Man Sing, one of the most powerful tálukdárs, possessed 577 villages, paying 20,000*l.* to Government as land revenue. The settlement of 1857 dispossessed him of all but six villages paying 290*l.* It is doubtful what his private income may have been, but it was probably 20,000*l.* a year, which was suddenly reduced to 300*l.* This is one instance out of many. In another ancient estate out of 378 villages, 266 were taken away; in another 155 villages were confiscated out of 204. The consequence was, that in Oudh alone, the mutiny of the army led to a general rebellion of the more influential classes of the people. Lucknow was recaptured in March 1858, and Lord Canning issued a proclamation confiscating the proprietary right in the whole soil of Oudh, with the object of making all titles depend upon grants from the British Government.

Sir Robert Montgomery, the First Commissioner of Oudh after the Mutiny, resolved to abandon the policy of 1856-57, and to restore the tálukdárs to all they had formerly possessed. They were invited to come to Lucknow with safe conducts; two-thirds of them did so, and political engagements were entered into with them, for the settlement of the land revenue of Oudh. It was, as General Barrow, one of the divisional Commissioners, expressed it, "A revenue settlement made upon the battle-field," and as such possesses the character of a political treaty.

The present settlement of Oudh is, therefore, a tálukdári settlement, so framed as to secure village occupants from extortion, and exacting certain duties and responsibilities from the tálukdars. The tálukdars were confirmed in possession of everything they held at the time of the annexation, in February 1856, and the rights of subordinate proprietors were confirmed as regards all they had held at the same period. The Government demand was fixed at half the gross rental, the under-proprietors only retaining that share of profits which they formerally enjoyed. In 1856 sanads or titles were issued to the tálukdárs, giving them permanent hereditary and transferable rights, including the perpetual privilege of engaging with the Government for the revenue of their tálukdáris; these rights, however, being subject to any measure the Government might take to protect the village zemindars and other occupants from extortion, and to uphold their rights in the soil, in subordination to the tálukdárs. These sanads were granted and issued by Sir Charles Wingfield on the 19th of October 1859. The tálukdárs hold their property

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by virtue of these sanads, on conditions unknown to Hindu or Muhammadan law. They have full powers of alienation by will, and in case of intestacy their estates descend to the nearest male heir, according to the law of primogeniture. But subsequent legislation has introduced some modifications. Every tálukdár now has power to revert to Hindu or Muhammadan law, or to the ancient customs of the family as regards the rule of succession to estates; and by the "Oudh Estates "Act" (I. of 1869) a list of Oudh tálukdárs is to be placed on record with the law of succession applicable to each estate, but the right to transfer or bequeath is still retained.

The tálukdárs, as a rule, have shown themselves willing to make concessions with regard to the smaller proprietors who hold land under them, and whose rights have now been well secured. The great landowners have agreed that a class, including one-fifth of the whole number of cultivators, shall receive rights of occupancy, and important protection has been extended to other classes of tenants. By Act XXVI. of 1866, called the "Oudh Sub-Settlement Act," the rules were declared to have the force of law, which the Chief Commissioner had previously made, for determining the conditions under which those who possessed subordinate rights under the tálukdárs should obtain the sub-settlement of lands or villages, which they held before the annexation in February 1856. The payments made by the under-proprietors to the tálukdárs, before the annexation, form the standard by which the present payments are regulated; but they are never to exceed the gross rental of the village, less 10 per cent., in what are called *seír* or *naukár* lands, that is, lands set apart for the subsistence of the tenant or home farms.

Thus there are two classes of tenures in Oudh, those which are held direct from the State, and those which are held indirectly. The former are divided into tálukdári estates, the nature of which has been described, zemindari or *mufrid* estates, and estates held in fee simple. The mufrid estates may be the property of one man, or, as is far more common, of a whole community, who are generally the descendants of a common ancestor. Sometimes such an estate is held in common, sometimes each member of the brotherhood is accountable for the management of his own share. In the latter case *lambardárs* or headmen are appointed, who are responsible to the Government for the land revenue. The fee-simple estates are very few in number, and consist of the properties sold under the waste land rules.

The tenures held indirectly are of four kinds: first, the sub-settled villages included in tálukdári estates, the rights of which are defined by Act XXVI. of 1866; second, the lands held by former proprietors who have been unable to prove their right to a sub-settlement of a whole village, called *sir*, *daswant*, *náukán*, and *dihdari*; third, certain groves held either by ex-zemindars or simple cultivators, who give the landlord a share of produce; fourth, lands granted, either by sale or as gifts for religious purposes, with full under-proprietary rights. Village servants also have a certain number of bígahs free of rent.

The revenue and field survey of Oudh was completed in 1871; 1419 square miles, assessed at 56,381*l.* a year, were settled in perpetuity; 21,071 for 30 years and upwards; 71 for terms under 30 years; and 444 were in progress of assessment. The number of acres held under the law of primogeniture is 2,499,465. There are 410 tálukdárs, of whom two-thirds hold their estates under that law. The number of under proprietary holdings in the province is 31,280, and the average rent paid on them about 1*s.* 6*d.* per acre. The land revenue of Oudh in 1872-73 amounted to 1,421,974*l.*, the largest that has been collected in the province since the commencement of British rule. No estate was sold for arrears.

There was a specially organised department for demarcating village boundaries. The limits were marked out by demarcation officers, and earth pillars were erected at intervals; a masonry platform, 4 feet square by 2 feet high, being set up where three boundaries met. The demarcation officers handed over a list of villages in each tahsil, with a record of the boundary pillars, and a rough map of each village, on a scale of 16 inches to the mile. The survey was conducted by the revenue surveyor and the settlement officer. The former measured the area of every village, and prepared two sets of maps, one on a scale of one inch to a mile, including 300 to 400 villages, and another on a four inch to a mile scale, containing eight or ten villages. These elaborate maps show, for every village, the boundaries, cultivated lands, groves, roads, houses, tanks, and waste land. The settlement officer superintends the *khasráh* or field survey, the measurements for which are made by amíns. The unit of measurement is the Sháh-Jehaní bígah of 3,025 square yards. There

is also a map showing all houses and enclosures, and a register of occupants and their castes, distinguishing males, females, adults, and children. As soon as all the villages of a parganah are measured and mapped, the settlement officer enters upon the work of assessment. The present, the first regular settlement of the province, commenced in 1860. Its principles are to assess by villages and not by estates, the Government demand being half the average gross rental of each village. The descriptions of soils, rents, character and caste of the people, style of cultivation, capability of improvement, comparative certainly or precariousness of crops, vicissitudes of seasons, and liability to floods, are the chief elements that are taken into consideration. The registers for each village comprise a map and field register, a house map and register, a list of wells and tanks, a register of the land of each co-sharer, a census paper, and a record of customs respecting inheritance, irrigation, fisheries, groves, and the appointment of village officers and servants.

The system of the North West Provinces was introduced into the Punjab on its annexation, but there is one great difference between the two provinces. In the North West Provinces the village communities have only been partially preserved, but in the Punjab, including the Delhi district, all the old village communities are very often perfect, each with a cultivating body and a complete internal system of management. Each man has land to correspond to his share in his own separate management, and the grazing ground is common to the cattle of all. Certain sums were always set apart from the revenue, for the remuneration of village officials. The Punjab settlement is based on the same system as that of the North West Provinces, with the essential difference that in the Punjab the bulk of the proprietors are actual cultivators, and that there are much fewer non-cultivating proprietors. The whole area of the Punjab covers 105,005 square miles. Out of 32 districts there are returns of the land tenures in 29, which have an area of 90,462 square miles. In these there are 29,558 villages held by 1,955,928 cultivating proprietors, and only 1,301 held by 3,579 proprietors of the landlord class. Thus the great mass is held by small proprietors who cultivate their own land, and are associated together in village communities with joint interests and responsibilities. The organization of the proprietors of land into village communities has existed from time immemorial, and is the work of the people themselves. Each Punjab village undertakes the payment, through its representative council of elders, of the revenue assessed upon it; and the payment is distributed among individual members of the community in proportion to the land held by them. The revenue is very punctually paid, and sales of land are unknown. Another great blessing enjoyed by the proprietors of land in the Punjab has been that, up to this time, they have been exempted from the interference of the civil law courts administering technical law. The settlement officers are invested with judicial powers, and landed property is not liable to summary sale in satisfaction of simple debt, without the special sanction of higher authorities.

As in the North West Provinces, the village boundaries are surveyed scientifically, and the fields are measured by means of native agency, the village field map and index being annually revised by the village accountant or pátwari. Every acre belongs to some one, and can change hands by sale, mortgage, will, or legal transfer, but the settlement is made with the proprietors as a whole. The assessment is fixed on each village for a term of years, and is calculated to leave an ample surplus profit. This demand does not exceed one-half of the net rent to the proprietor, after deducting all expenses of cultivation. In addition, one per cent. of the net assets is deducted for a road fund, one per cent. for an education fund for village schools, and there is a charge for a district post, besides a cess for police and conservancy. There has been a very great increase of cultivation during the last 15 years, under the settlements made for limited periods.

During 1872–73 revenue settlements were at work in eleven districts. As many as 11,069 suits for rights in land and rent suits were disposed of, in the settlement courts, during the year 1872–73, besides a large number of miscellaneous revenue cases. Four revenue survey parties were at work in Delhi, the Derájat, and Bháwalpur, an independent State, under the Punjab Government.

The land revenue of the Punjab, for 1872–73, was 2,005,666*l.*, being an increase over the preceding year of 37,959*l.*, which is chiefly due to large lapses of revenue free grants, and to considerable excess of alluvium over diluvium.

In the Central Provinces the settlements throughout the greater part of the districts have been sanctioned, and have been working for several years. Within the limits of the Central Provinces is to be found almost every form of land tenure

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that exists in India. There are estates of feudatory chiefs, held on conditions requiring only loyalty and good government; zamindari tenures, held by hereditary landlords, with no subordinate tenants having fixed rights; tahutdari tenures, where the subordinate holders usually have permanent holdings, and village communities. The prevailing tenure in the Central Provinces is the *malguzari*, by which the estate is managed by a single proprietor, and the land is held by cultivators, whose rents are thrown into a common stock. Profits are divided, or losses shared, with reference to the respective shares of the different proprietors. When disputes occur there is a regular division of the whole lands of a village, which are then separately held according to shares. The tenure then becomes *patidari*.

The revenue survey of the Central Provinces has been conducted very much on the principle of that in the Punjab. The amins and patwaris are trained to the use of plane table, compass, and chain; and they demarcate the village boundaries and measure the fields, preparing a map (*shajrah*), a field-book (*khasrah*), and other documents. These *khasrah* measurements are followed and checked by the professional survey, and its work, in the majority of the districts, has already been completed.

The land revenue of the Central Provinces amounted to 596,386*l*. Out of an area of 36,046,250 acres, a little less than a third is cultivated, and about another third is cultivable. The rate of assessment on cultivation is about 1*s*. an acre.

The prevailing system of land revenue in the Madras Presidency is entirely different from that which prevails in the north of India, the settlement being made with each ryot or cultivator, instead of with the proprietor or village community. The revenue unit is the actual field, and not the township or estate. Every ryot is secured in possession so long as he pays the revenue; and waste lands are available for the first comer who chooses to take them on the prescribed terms. Sir Thomas Munro, who was Governor of Madras from 1818 to 1827, was chiefly instrumental in introducing this ryotwar system, and he considered its great advantage to be the strength and security it gives to the Government, by bringing it into direct communication with the great body of the cultivators. In the ryotwar system a maximum rent is fixed on each field, to be paid for good crops. If the crops fail, the rent is reduced; and there is an annual settlement on cultivated land, according as it is irrigated or not irrigated. In 1837 it was ordered that there should be no increase of demand on account of the growth of more valuable produce; and, in 1852, another order was promulgated, to the effect that no ryot was to pay an additional tax on account of improvements, causing an increase of value, which were made by himself. During the government of Lord Harris, in 1854, very considerable reductions were made in the demand on land in most of the Madras districts, amounting to a total sacrifice of revenue to the amount of 259,000*l*. This led to a very considerable increase in the area of cultivation, a proof that the people were previously too heavily assessed.

The original Madras surveys were exceedingly incorrect, and in many districts the land revenue demand was based merely on the unchecked statements of the village accountants. But, in 1858, a new revenue survey was commenced in Madras, under the able management of Colonel Priestly, with the object of correcting the measurements of superficial areas, and of ensuring a fair and just assessment on each description of land, by a classification of the different fields in each village. The Survey Department was brought up to its present strength in 1865. The survey is conducted on the accurate English method, and is the only Indian revenue survey, except those now in progress in three districts of the North West Provinces, which is based on rigorous principles in every detail. It combines the operations of a cadastral survey with those of a topographical survey on a trigonometrical basis. The fields are measured in triangles, and plotted in village maps on a scale of 5 chains to an inch, as regards all ryotwar lands. These village maps show all topographical details, and the limits and area of every field, with a record of the nature of tenure, cultivation, present assessment, name of ryot, and source of water supply, if irrigated. Estates not held on ryotwar tenure, hill ranges, and wastes, are drawn on a scale of 4 inches to the mile. The village maps are compiled into *taluq* maps, on a scale of one inch to a mile, and these form the materials for district maps. The area to be surveyed was assumed at 60,000 square miles, or 38,000,000 of acres. Up to 1873 the survey of eight districts was completed, and eight were in progress. The completed area surveyed and plotted in fields was 40,848 square miles; the area mapped and topographically surveyed was 48,872 square miles. The excess of assessable area brought to light by the surveys ranges

from 2 to 23 per cent.; and in the completed districts the survey gives 24,000 square miles, which have hitherto only been counted as 21,500 for assessment purposes. The average assessment is 3*s.* 9*d.* per acre, and the addition of these 2,500 square miles to the taxable area represents an annual gain to the State of 300,000*l.* The average size of fields is about two acres, and the approximate number measured and plotted in the eight completed districts is 7,000,000. The number of village maps that has been drawn is 15,546, and the average error per mile, shown by the test of comparing the work with that of the Great Trigonometrical Survey, is 7·61 feet. Sixty-seven *taluq* maps have been completed, 34 of which have been lithographed. It is most desirable that these taluq maps should be worked up into district maps, with the necessary numerical data, so as to be reduced and incorporated in the sheets of the Atlas of India.

The measuring work of the survey is followed by the equally important operation of classing the fields, with reference to the productiveness of their soils. The soils are first divided into five series with reference to origin and general characteristics; and then sub-divided according to component parts of clay, sand, lime, and organic matter. The first is the alluvial and exceptional series, sub-divided into two sorts of *lanka* or island soil, and two sorts of permanently improved garden land. The second is the *regur* series, sub-divided into three sorts of clay *regur*, three of mixed or loamy, and three of sandy *regur*. The third is the red ferruginous series, also divided into three sorts of clay, three of mixed or loamy, and three of sandy or gravelly. The fourth is the calcareous series divided into two sorts of clay, two of mixed or loamy, and two of sandy or gravelly. The fifth is the arenaceous series, divided into two sorts of loamy, two sandy, and two sand. Thus there are altogether 34 sorts of soils; which are determined chiefly by the quantity of organic matter, or the presence of other valuable or deleterous ingredients. The next operation, after the fields have been classed with reference to soils, is the assignment of grain values to the several classes and sorts of soils. Much care is taken to ascertain the actual yield of land sown with staple products; and an average per acre is eventually fixed. From this from a fourth to a sixth is deducted for vicissitudes of season. The commutation prices are then determined according to the average market price prevailing during 20 years, from 1845 to 1865, deducting from 8 to 20 per cent from the market prices, to obtain the wholesale or cultivator's prices. The cultivation expenses are then estimated and deducted, the result being the net profit on the land. Half of this is taken as the Government demand, and becomes what is called the "money rate" or future assessment for wet and dry land respectively. Then modifications are allowed on account of distance from markets, conveniences with respect to roads and canals, and the efficacy of irrigation, and villages are grouped with reference to these considerations.

In the Northern Circars, including Ganjám, Vizagapatam, and Rájmahendri, the perpetual settlement was introduced; and there are a great number of inams or rent-free estates throughought the Presidency of Madras, some of them held for upwards of 700 years. The perpetual settlement in the Northern Circars is made on zemindari and mutadari tenures, which are also found, to a small extent, in Madura, Nelor, and North Arcot. In the ancient zemindaris the eldest son succeeds, the other members of the family being entitled to maintenance from the estate. But in the newer estates of this kind, called mutadari, formed under the operation of Regulation XXV. of 1802, the ordinary Hindu rule of inheritance prevails. The zemindars are subject to an annual payment of a fixed amount. But the rights of the actual cultivators are carefully guarded by the Madras Act VIII. of 1865 (*Secs.* 11 *and* 12). With regard to rent all special contracts are to be enforced, but when there is no contract the rent is to be fixed with reference to the assessment on the fields at the time of the survey, or to local usage; and is subject to enhancement with the sanction of the collector. But occupants can only be ejected on failure of payment.

The peculiar *Oulungu* renting system formerly prevailed in Tanjor and Tinnevelli; but it now only exists to a very small extent. When the assessment in kind was converted into a money assessment, it was agreed that it should vary with the current price of grain, whenever the market price rose more than 10 per cent. above the commutation rate, or fell more than 5 per cent. below it.

In Malabar and Canara the tenures are peculiar, and no Government has hitherto interfered with them. The proprietors have held their estates from time immemorial; and the rent is fixed, not on each field, but as a lump sum payable on the whole holding. The landlords receive from 20 to 40 per cent. of the rent, and pay the rest

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to Government. The Malabar rule is to deduct 20 per cent. of the gross produce of the rice fields for reaping, the remainder being the available gross rent. From this one-third is taken as the expense of cultivation, and one-third as the cultivator's share. The remaining third is rent to be divided between the landlord and the Government. The assessment on the rice lands, essentially the same as that fixed by Tippoo in 1784, though unequal and in some places heavy, is on the whole light. The assessment is not calculated on the extent of land, but on the amount of seed required to sow a given extent, varying according to the quality of the soil, which is divided into three sorts, clay, sand and clay and sand. The garden assessment of Malabar was fixed, in 1820, on cocoa-nut trees—the chief wealth of Malabar—betel, and jack trees. The cocoa-nut trees are classed according to their situation and soil. The upland cultivation of rice and oil-seed is taxed on an annual inspection, 40 per cent. of the gross produce of the former being deducted on account of the peculiar labour, and 20 per cent. of the remainder being the Government share. Other dry grains, pepper, ginger, and coffee, are free of land-tax.

The land revenue of the Madras Presidency for 1872–73 was 4,693,469*l*. The area of cultivated ryotwari land was 17,253,604 acres; of which 3,124,480 were irrigated, and 14,129,124 unirrigated. The assessment was 3,195,033; and the assessment for Malabar and Canara was 305,701*l*.

The Bombay Presidency did not comprise extensive territory subject to a demand on the land until a comparatively recent period. As Akbar made the first regular settlement in the north of India, so Malik Ambar, the Abyssinian, was the great native administrator for the western side of the peninsula. He revived and confirmed the tenures of village communities (mirasi tenures) and made village settlements for money payment. But this system was not adopted by the English; and in 1847 the present ryotwar system was introduced under the superintendence of Sir George Wingate. It is a field settlement, but it differs from the Madras system, from the circumstance that in Bombay, instead of an annual settlement, the rent is fixed for each field for a period of 30 years. Each ryot may each year cultivate what field he pleases, and give up what he pleases; the fields which are not taken up for cultivation being let annually by auction as grazing grounds. All joint tenures and common responsibilities are entirely abolished.

The unit or basis of the Bombay Survey is an artificial field, or area, called a "number," the size of which is fixed at what one pair of bullocks could plough up to double that size. This varies from four to eight acres for rice cultivation, and from 20 to 40 acres for dry crops. The village boundaries are marked by stone pillars, and a series of detached earthen mounds are raised to demarcate the limits of fields or "numbers." The survey is a very rough measurement, and is useless for general purposes, or for the construction of correct maps; but the classing is a complicated and elaborate system, by which the value of each "number" is carefully ascertained. Numerous considerations are brought into account, which are classed under three heads, namely, distance from the village site, natural productive capability, and the nature of the water supply. When the classing is completed the amount of the assessment is fixed, which is calculated with a view to leaving such a surplus to the cultivator as will render him capable of improving his circumstances, and extending his cultivation. The settlement was generally for 30 years.

As the Bombay 30 years' settlement was commenced more than 30 years ago, the revision of several districts has been completed, and several reports on the re-settlement of various tálukás have been received. These reports enable an opinion to be formed on the results of the settlement, and on the effect it has had on the prosperity of the people. As examples, the three tálukás of Bhímturi Chándúr, and Indapur, may be taken, the one in the Poona, the second in the Nasik Collectorate. The two first were settled in 1841, and re-settled in 1871. Bhímturi is a long narrow belt of country lying along the banks of the Bhíma, to the south of Poona, and almost destitute of trees, except where thickets of babúls grow near the river banks. In 1841 the people were in an abject state of poverty and wretchedness. In 1871 the population had increased 39½ per cent.; the number of carts from 273 to 1,011, owing to the opening of new roads; the number of ploughs, 22½ per cent., and of bullocks, 19 per cent. In 1840 there were 527 wells in working order, now there are 727. The whole cultivable area is now taken up. The Chándúr táluká is situated between the Chándúr hills and the river Godávari. Since 1840 the population has increased 100 per cent.; the number of carts from 903 to 2,747; of bullocks, from 8,602 to 13,998: of wells, from 712 to 1,076. In 1840 the number of acres under cultivation was 95,867; it is now 110,223; and the new settlement

increases the land revenue by 52 per cent. Both tálukás, which may be taken as samples of many others, have now got all the cultivable land under cultivation. Indapur is notoriously one of the most unfavourable districts in the Deccan, owing to the poorness of the soil, and the small and uncertain rainfall. Yet, during the 30 years of the settlement, the population has increased 31 per cent., bullocks and farming stock, 20 per cent., plough, 28 per cent., and carts, 300 per cent. Fiscally, the most important settlement of 1872–73 is that of the Anklesar Taluka in the Broach Collectorate, where the increase in revenue amounts to 22½ per cent. of the entire sum levied; though the new rates do not average more than *Rs.* 4. 3. 4. an acre. These instances may be taken as good evidence of the increasing prosperity of the people.

During the year 1872–73 the number of acres measured was 2,533,962, and the classification of 2,049,195, was completed. In the Poona, Nasik, and Sholápur Collectorates, the results of revision give an increased revenue of 17,078*l.* or 61 per cent. in excess of the former demand; due, to a considerable extent, to the detection and measurement of land formerly unassessed.

In Ratnágiri there is a tenure, the Khoti tenure, the peculiarity of which is that a class of landholders invested with large and influential proprietary rights, called Khots, exists between the Government and the actual cultivators. The attempts to adopt the Survey arrangements to this special case have not been accepted by the Khots as a class; and the Bombay Government is engaged in devising a system which may place the Survey operations in Ratnágiri on a satisfactory footing, by a more specified legal recognition of the rights of the landlord class.

The land revenue of Bombay, including Sind, amounted, in 1871–72, to 3,402,789*l.*, and in 1872–73, to 3,751,050*l.*

North Canara is a district which was transferred in 1858 from Madras to Bombay, owing to the convenience offered by the port of Canara for the shipment of the cotton grown in the Bombay province of Dharwar. The tenures resemble those of Malabar and South Canara in the Madras Presidency; and the people hold that they have special tenures, and that the Government has no right to raise the demand on their land, and that it cannot be sold for arrears. Accordingly the introduction of revised rates of assessment in the Karwar Talúk was the occasion of a general combination to resist payment, and to test the validity of the Government claim by an appeal to the High Court. The Bombay revenue survey and assessment was introduced about 10 years ago, its progress has been very slow, and the result has been the filing of 600 suits against the Government. The question has not yet been decided.

Sind, the region watered by the Indus in its lower course for a length of 360 miles, is under a system of revenue assessment somewhat different from that of the rest of the Bombay Presidency. The province only became a portion of British India in 1843, and has since been administered by special Commissioners. Previously, for upwards of a century, there had been a military despotism on feudal principles under two Muhammadan dynasties, the Kalhoras and Talpurs, and many of their grants of land have been recognised, while most ancient rights and customs were continued. Thus the Sind revenue system is distinct in several respects. The prevailing tenure is zemindari, by which the proprietor or zemindar does not cultivate the land himself, but through the occupiers who pay him shares of the crops according to the immemorial customs prevailing in the different districts. In the times of native rule the revenue was paid in kind, not in money, and generally according to a system called *batai*, or division of the crops into shares, of which one-third of the gross produce belonged to the Government. As soon as the grain was threshed, the *bataidars*, and other officials, proceeded to the threshing floors, and the cultivators made the grain up into three heaps, and a fourth detached heap called *tor*. One heap was taken for the Government, two for the cultivator, and out of the *tor* heap was taken the dues of the zemindar, one-twentieth for reaping expenses, and the shares for the carpenter who made the water-wheel for irrigation, and for the potter who supplied the *charkh*, or pots which lift the water. What remained from the *tor* was divided into three heaps, two of which were taken by the cultivator, and one by the Government, out of which officials were paid. Another system was the *khasgi*, by which the assessment was fixed, and did not vary with the crop. There were also the *mohsuli* or fixed cash assessment for certain descriptions of crops such as tobacco, sugar cane, and cotton; the *danbandi*, which was roughly determined according to the state of crops in distant or detached fields; and the *muta* or contract system.

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The occupiers who hold under zemindars in Sind are of two classes. The *hari*, literally ploughman, is a mere tenant at will, while the *marosi hari* has hereditary tenant right, pays the assessment to Government, and is in reality, owner, subject to a small rent to the zemindar, but with power to mortgage, sell, or bequeath his holding. In some cases the zemindar supplies the seed, and even the bullocks to the *hari*, and takes from him the amount of the Government assessment, and of the value advanced, and one-fifth as his due (called *lapo*), leaving the rest to the cultivator. In others the zemindari lands are cultivated by tenants who find their irrigating wheels and live stock, and make over one-half to the zemindar, who pays the Government demand.

The topographical survey of Sind, which to a great extent was also a revenue survey, fixing village boundaries and recording the details of cultivation, was commenced in 1856 and completed in 1870. But no regular settlement operations were commenced until 1855, and none were actually introduced on the right bank of the Indus until 1862, and on the left until 1863. Previously there were settlements for short periods, without regular measuring and classing. In 1865 the Sind Settlement Department was re-organized, and the operations were placed under two officers with suitable staffs, the Settlement Officers of the left and right banks of the Indus. The province includes three Collectorates: Shikárpur divided into the Deputy Collectorates of Shikárpur, Rohri, Lárkhána, and Mehar; Karáchi divided into Sihwán, Kohistan, Karáchi, Jhirk, and Shahbandar; and Haidarabad into Naushahra, Hála, Haidarabad, and Tanda; besides the native state of Khairpur, the political superintendency of Thar and Parkur, and the frontier district of Upper Sind. In Rohri the settlement was completed in 1871-72, the average rate per acre being 1r. 4a. to 2r. 10a. In Lárkhána the first temporary settlement was very heavy, but the second, made by Captain Ford in 1855, was much reduced, with reference to facilities of irrigation. In Mehar the settlement was introduced in 1867-71, and also in Sihwán, for 10 years. In Tanda, Haidarabad, Hála, and Naushahra, the settlement is also completed. In the hill district of Kohistan, on the western frontier, which is chiefly inhabited by Bilochis, the revenue demand has been altogether remitted for 20 years from 1865, to induce the tribes to cultivate more land on their barren hills. In the state of Khairpur, where Mír 'Aly Murad Khan Talpur still rules, the revenue is collected in kind, according to the old *batai* system. The new settlements have substituted money payments for payments in kind. The rates are fixed according as the land is watered by the *mok* or inundation wheel, the *sailab* or perennial wheel, or is *barani* or land watered by the rains. In every division there are a great number of rent-free lands. Many of them are jágirs granted by the princes of the old Kalhora, or Talpur dynasties. Others are either *seris* granted to officials for services, *pattas* given to persons who have dug wells or planted trees at their own expense, *puris* or tree plantations and gardens.

As the agriculture of Sind depends on the irrigation derived from the Indus, the classing of the land has reference mainly to the facilities for obtaining water, which will be found further described in the section on irrigation. Where the land is perennially overflowed the facilities are greatest. Next comes the land which receives periodical inundation, and lastly that where it is always necessary to raise the water by means of wheels, at considerable expense. The *barani* lands, dependent on rains, are of course the least valuable.

In Mysore the Revenue survey was commenced, in 1863–64, on the model of the Bombay survey; the first step being the division of land into fields not larger than can be cultivated by ryots of limited means. The measuring and classing of fields is on the Bombay system; the three main divisions being into lands dependent on rainfall on which dry grains are raised (*kushki*), irrigated lands for rice and sugar cane (*tori*), and *bagayat* or garden lands for areca and cocoa-nut trees. The Circar or Government lands are held under ryotwari tenure, either on *kandayam* or fixed money assessment, or on the principle of sharing produce, called *batayi*. Most of the *kandayam* lands are held by annual leases, the assessment, however, being seldom altered; but in the surveyed tálukás the term is for 30 years. There is absolute hereditary tenant right in all *kandayam* lands. The *batayi* tenure still prevails in the district of Nandidrug; but it will disappear on the completion of the survey. Besides these lands held direct from Government, there are private Inam estates, where the villagers or under-tenants hold on four kinds of tenures: the *warum* where there is an equal division between the landlord and tenant, the former paying the assessment; the *mukkuppe*, where the cultivator receives two thirds, and the landlord one third;

the *arakandaya* where the landlord receives a fourth, and the assessment is received half by the landlord and half by the cultivator; and the *volakandaya*, where there is a fixed money rate paid to the landlord. In the Nagar hills the holdings of the ryots are called *wargs*; each *warg* comprising all the fields held by one *wargdar* or farmer, which are generally scattered in different villages.

In the little mountainous province of Curg there are, besides the inam or rent free holdings for the maintenance of temples, four kinds of land tenure peculiar to the country, called *jamma*, *sagu*, *umbli*, and *jódi*. The *jamma* is the feudal tenure of the Curgs and other privileged classes. The holders only pay half assessment, but are bound to furnish police and treasure guards, and are allowed to carry arms. When the jamma grant is signed by the Chief Commissioner a formula is spoken intimating that the holder has secured the hereditary right to the land on the feudal conditions laid down, and a handful of the soil is given to him. The *sagu* is an ordinary ryotwari tenure. *Umbli* lands are lightly assessed, owing to the grants being made for special services. *Jódi* lands are taxed at jamma rates, but they have been granted for special services, instead of being held on condition of performing duties of a general nature. Lands for coffee cultivation are held free of tax for the first four years, one rupee per acre is required from the fifth to the twelfth year, and two rupees per acre afterwards. The whole land of the province was permanently settled by the Raja in 1806, and this settlement has not been interfered with by the British Government. But owing to the introduction of a land tax in the coffee plantations in lieu of the *halat* or tax on the coffee, a party was detached from the Madras Revenue Survey in 1862, and all the coffee estates have now been surveyed, though the computation and mapping is not yet complete. It is not intended to make a field survey and settlement in Curg, but merely a topographical survey, which is now in process of execution: 42 villages, 158 square miles in area, have been demarcated; and a map of the town of Mercara, the capital of Curg, on a scale of 16 inches to the mile, has been finished.

In British Burma there is a vast excess of cultivable but uncultivated land, and the rates of assessment, though varying with reference to quality of soil and means of transport, generally range low. The light land tax is, however, supplemented by the capitation tax peculiar to this province, while the rice duty is reported at present to fall wholly upon the producer, and thus to be equivalent to a further enhancement of the land tax. The holders of the land in Burma are the actual cultivators, the extent of whose holdings averages about five acres.

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THE season of 1871-72 was one of abundance and general prosperity in Bengal, and the results of the husbandry of 1872-73 were on the whole fair, and in some places excellent. The summer of 1872 began with an unusual drought, which continued into June and July; but the rains, though scanty, were well distributed, and gave an excellent early crop in the higher lands. The long delayed rain in October saved the rice crops, which yielded a good return, and in Midnapur the harvest was excellent. Nothing, to the unscientific eye, seemed to presage the terrible calamity that was looming over the land, yet, if meteorology had received more timely attention, had sooner been treated as a physical science instead of a mere register of weather, there might have been a much earlier warning. The highest known annual rainfall at Calcutta for 36 years was in 1871 (93 inches), the lowest but one (44 inches) was in 1873.

In the North West Provinces the weather of 1872-73 was one of agricultural adversity. The rains were heavier than the average, and ended earlier than usual, and the autumn crop was a poor one, especially in the eastern districts. The Christmas rains were almost entirely wanting, and the spring crop suffered much from drought. In the Central Provinces, however, the year under review was agriculturally a prosperous one, and there were excellent harvests. In the Madras Presidency, also, though the harvests suffered in most places from unseasonable or too abundant rain, the season was on the whole good. In Bombay the rainfall was abundant and opportune, and the season much above the average. In Mysore the season was also good, and especially favourable for the coffee crops.

The close connection of meteorology with agriculture is now beginning to be felt by administrators, and the calamity of 1873-74 must ensure more attention being given to this connection, and to the most efficient means of bringing it to bear on economic questions, than it has hitherto received. Ten years ago the only meteorological observatories in India were the Surveyor-General's at Calcutta, those at Madras and Bombay, with four others in the Bombay Presidency; the two superintended by Mr. Allan Broun in Travancor, and there had been an admirable series of observations taken by General Boileau at Simla. There were also a number of registers of rainfall and temperature kept by the medical officers of stations, but these were of little value. In 1865 the first steps were taken by the Governments of Bengal and the North West Provinces to obtain regular meteorological registers from a number of selected stations, under the charge of a special officer for each Government. The system has now been in continuous operation in Bengal, under Mr. H. F. Blanford, for more than seven years. At six first-class stations the Electric Telegraph Station Masters were provided with instruments and instructions, and directed to observe at 4 and 10 a.m. and p.m. At ten second-class stations a similar series is taken by native observers under the direction of the civil surgeons, and there are 139 third-class stations where the rainfall only is observed. The meteorology of the North West Provinces, under Dr. Murray Thomson, is observed at 14 stations, ranging from 255 to 7,056 feet above the sea. The observations in Oudh are superintended by Dr. Bonavia, and in the Punjab there are 12 observing stations under the general superintendence of Dr. Neil. In the Central Provinces very good work has been done under Dr. Townsend's auspices, and 14 meteorological stations were equipped in the Madras Presidency in 1867, under Mr. Pogson, the astronomer, besides 216 rainfall registers. At the Colaba Observatory, near Bombay, observations are taken hourly, with great care and detail, under the supervision of Mr. Chambers.

But the great want still is central control, and a single publication containing observations recorded throughout India. An independent system of registration in every province, without central control, is baneful, for the comprehensive discussion of the meteorology of India is not practicable without more concerted and uniform action than now exists. When this is secured, the most important and valuable results will follow. For, as Mr. Blanford has observed, India offers peculiar advantages for the study of meteorology. At opposite seasons of the year it exhibits an almost complete reversal of the wind system, and of the meteorological conditions depending on it. Its almost complete isolation, in a meteorological point of view, from the rest of the Asiatic continent, by the great mountain chain along its northern border, simplifies, to a degree almost unexampled elsewhere, the conditions to be

THE RAINFALL OF INDIA

NOTE. The Rainfall map in the Statement for 1871-2 was prepared from lines traced by H. Brandis and Major General Richard Strachey, C.S.I. The present map contains the lines of equal average annual rainfall in Northern India, very recently traced by W. Blanford, combined with the former work for Southern India, both being modified and extended in effecting their combination.

contrasted, by limiting them to those of the region itself, and the seas around. India also presents, in its different parts, extreme modifications of climate and geographical feature. In its hill stations it affords the means of gauging the condition of the atmosphere at permanent observatories, up to a height of 8,000 feet. The periodical variations of temperature, vapour, tension, and pressure, both annual and diurnal, are strongly marked, and regular, and their changes proceed so gradually that the concurrence and interdependence of their several phases can be traced out with precision.

At present the meteorological officer of each province issues an annual report. In 1873 Mr. Blafiford, the Meteorological Reporter to the Government of Bengal, also published a valuable paper on the Winds of Northern India, in relation to the temperature and vapour constituents of the atmosphere; his object being to describe the normal wind currents of Northern India and their annual variation, and to trace out their origin and causes. This essay only professes to be a first rough sketch, requiring detailed verification. The causes of the irregularities that characterize the monsoons of different years demand special enquiry, on account of their economic importance, but the data from other parts of India have yet to be brought together and collated. The most necessary preliminary measures are now to secure a uniform system of registration, and to collect all the observations throughout India in a central office, the whole being under the control of one man.

Meteorological observations are of special importance with reference to agriculture. Before 1837, in the North West Provinces, there were four years of which the first and third were of excessive humidity, the second and fourth of like dryness, while in 1837 the climax came. Similarly, in 1858, 1859, and 1860, the climate was of an abnormal character, and a like climax came in 1861. Can anything be more vital than a scientific investigation into the laws which regulate these phenomena? Yet, until within the last few years, as has been seen, little more was done than the taking of careless rainfall observations at various stations, a great mass of which were actually given away! A writer in the *Calcutta Review*, for April 1871, pronounced our knowledge of meteorology in India to be actually but little in advance of its condition twenty years ago. Since then, great improvements have been introduced by Mr. Blanford, Mr. Chambers, and other able meteorologists; but a uniform and centrally administered system of meteorological observations for the whole of India is still needed. Mr. Blanford has pointed out that systematic observations should be directed to the special study of the normal law of the monsoons and of their anomalies, with reference to the distribution of rainfall and its variation in different years. The rains are dependent on the prevalence of certain winds, the general direction of which is known. It is also known that they are caused, and their direction determined, by differences in barometric pressure. But very little is known of the actual distribution of that pressure in India. It depends primarily on temperature, but the effects are complicated by variations in the humidity of the air, and by peculiarities of physical geography. When these elements have been collected, and true results derived from them, a great step will have been taken towards the comprehension of climatic laws, and of the apparent anomalies which cause scarcity and famine. The efficiency of the departments, the purposes of which are to collect and classify statistical and scientific information, is therefore a measure of great importance with reference to provision against the recurrence of famines.

The harvests of India, even in the years when they fail over certain areas, are abundantly sufficient to feed the people. The prevention of famine years will eventually be achieved through the increased well-being of the cultivators, improved agriculture, a more perfect system of communication, and an efficiently organized meteorological department. Famines are most frequent in regions where the climatic conditions are most irregular; but they will cease to be periodical visitations so soon as administrative measures leading to the above results are more efficient; and meanwhile they are less frequent everywhere, and have already ceased in certain favoured parts of the country, where the rains are regular, and the system of revenue settlement is best adapted to secure the well-being of the people. The terrible calamity which has fallen upon Bengal will form the subject of the main portion of this section in the report for 1875; but meanwhile it will be useful to give here a brief notice of the nature of the food crops in the afflicted region.

Rice, the varieties of which are infinite, forms the principal food grain of Bengal. The paddy (*dhan*), or rice in the husk, is divided into two main crops. The early

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or *aus** crop is mostly raised upon high level lands, and gathered in July and September. The plants are not transplanted, but reaped where they are sown. The *aman*† sown in April, transplanted in August, and reaped in November and December, is the great crop of the year. One kind is sown broadcast; but it is usually transplanted, when about a foot high, to land on which there is about ten inches of water. When sown broadcast it is called *boron* or *boorya*, and it is sown in beds of pools and rivers. As the water rises the rice grows with it, the stems reaching a length of twelve or even twenty feet. It is extraordinarily rapid in growth, and is sown and reaped at the same time as the transplanted kind. Besides these there is another principal kind of rice called *boro*, which is raised in low lands and on the edges of swamps and jheels where the water is intercepted. The plant is uprooted from the nurseries, and stuck deep into the mud during the cold weather. The crop is reaped in April and May, and its success depends on irrigation. There are innumerable minor varieties of rice. The *aus* crop produces a coarse rice, which is usually consumed by the people, while much of the *aman* crop is exported, especially from Dacca and Chittagong. The annual export of rice from Calcutta averages more than a million maunds.

In Bahar rice is also the main staple of food, though, where the fields are high and dry, one of the two daily meals of the cultivators is usually of wheat, maize, or peas. Rice is, however, the favourite food; and the food of the ordinary cultivators is half of rice and half of other cereals, millets, and pulses. Millets (*kodo* and *murwa*) are the food staples of Gaya and Chota Nágpur; and barley, either eaten with salt and chillies, or ground with dal (pulse) and baked into chupatties, is the cheapest of all the food crops in Tirhut. In Patna and Sháhabad maize is largely used. Nor is rice the sole food of the ryots of Bengal. Millets are raised after the rains and reaped in March, and many varieties of dal (pulses) are reaped in the cold weather. Among the *turkari* or vegetables of Bengal, brinjals are the most common, yielding two crops a year in almost every garden; while a gourd called *koomra* may have been seen trailing on bamboo stages, round almost every ryot's hut. The fisheaters use *huldi* (turmeric); and other ingredients of curries, such as ginger, coriander, cummin, aniseed, chillies, are commonly grown. Potatoes are chiefly found in Assam and the hill districts: the crops on the Khasi hills yielding about 185,000 maunds.

In the Upper Provinces the people are less dependent on rice, and other cereals take its place; and in the Madras and Bombay Presidencies the dry grain crops form the staple food. In Mysore the *ragi* (*Eleusine corocana*), a dark and very small grained millet, forms 66 per cent., and rice only 24 per cent. of the whole cultivation of the country. Throughout the Bombay Presidency *jowari*, or great millet, is the staple most cultivated, *bajri*, a smaller millet, comes next, and rice only takes the third place. Bajri and jowari are also the two principal grains grown in Sind.

Accurate and reliable statistics would be a great aid in the organization of efforts to improve the agriculture of India. By an efficiently tested registration of agricultural facts on the spot, a vast amount of information would be made available for the use of the Government, which, if properly handled, might become of great value. It is, therefore, important that Government should be kept continually supplied with the agricultural statistics of each successive year. Much care and attention have been bestowed upon the form in which such statistics should be compiled in the Bombay Presidency. Commencing with the village accounts, and proceeding through the district accounts, the minutest particulars affecting the administration of the land revenue are carefully and systematically recorded and compiled, until the total results of a whole collectorate are finally shown in what are known as *huzur* or collector's accounts. The Bombay agricultural statistics, thus accurately recorded, consist of details of the extent of each class of culturable land, the extent to which each product is cultivated, and the agricultural stock. The system of classing and measuring each field, which prevails in Madras, Bombay, and Mysore, offers by far the best machinery for obtaining accurate statistics. In Bengal, on the other hand, where there is nothing of the kind, it is very difficult to obtain information that is at all accurate. Sir George Campbell, during the year under review, made an attempt with this object in view. He organized establishments for obtaining agricultural statistics in four districts, Birbhúm, Shahabad, Jessor, and Rangpur. A deputy collector, with the necessary staff, was deputed to each in 1872–73, with instructions to ascertain the area occupied by the different crops, the grazing capacity of the district, the average

* The *aus* of Bengal is called *beali* in Orissa, *ahu* in Assam, and *bhadoi* in Barar.
† The *aman* of Bengal is called *saorud* in Orissa, *sali* in Assam, and *aghani* in Barar.

produce, rents, modes and results of agricultural processes, and of stock-keeping, size and tenure of farms, condition and habits of the people, rates of wages, and prices. The reports on the Jessor and Birbhum districts have been received, and the former is said to be most creditable to its compiler.

In the North West Provinces there is a complete absence of available agricultural statistics. It is true that, under special pressure, some facts have been collected about cotton, but statistics could not be furnished regarding other agricultural produce. There is, however, an excellent proposal before the Government for ensuring the maintenance of correct agricultural records in the North West Provinces. By this plan there would be a special officer, under the Board of Revenue, to supervise the maintenance of the village records, to provide an annual series of agricultural statistics, and to see that the *patwaris* or village accountants, who form the working machinery by which the above information must be obtained, are properly instructed. As regards the revenue assessment no evidence is so good as the history of the crops and irrigation of each field for a succession of years, and a trustworthy statement of the average area under cultivation from year to year. If the settlement officer knows that a field has grown sugar-cane every third or fourth year, and has been irrigated every other year for the last thirty years, he forms a better idea of its value than if he finds it growing a crop of barley bitten by an exceptional frost in the year of inspection, and paying about a sixth of its proper rental. It is also a matter of great moment that the Government should be aware of the effect of the introduction of a canal upon the agriculture of a district. At present the ideas on the results of canal irrigation are founded on mere conjecture, which a series of reliable statistics would be the means of replacing by knowledge based on certain and accurate facts. Very little is now known about the produce per acre of land in general in the North West Provinces. The most important step towards securing information is the education of the *patwaris* or village accountants; but agricultural statistics will be useless unless they are properly arranged; and hence the necessity for appointing a supervising officer, not only to secure accurate records of occupancy, and of agricultural facts, and an annually corrected rent roll, but to classify and arrange these materials, and to present them in a clear and intelligible form.

Almost from the commencement of British Rule in India, the Government has recognized the duty of making advances (called *takávi*) to owners and occupiers of land for the purpose of promoting the construction of minor works of agricultural improvement of such a description as could be designed and carried out by the people themselves. In the Madras Presidency these advances were made in bad seasons, to be repaid when the crops were gathered, or sometimes to enable ryots to extend their cultivation. The interest on *takávi* advances was 5 per cent., and they were recoverable by the same processes as are applicable to the recovery of arrears of land revenue. It was found that a consolidation of the laws on the subject of *takávi* was necessary; and in the end of September 1871 the "Land Improvement Act" became law; which is an Act to consolidate and amend the law relating to advances by the Government for agricultural improvements. It has been in operation during 1872–73. The Act authorizes local Governments to make rules prescribing the manner in which applications for advances may be made, the conditions under which they may be granted, the arrangements for securing the due expenditure of advances, and for the proper inspection and maintenance of works constructed by their means. Any landlord or tenant desiring to make improvements on land of which he is in possession or occupation may make an application to the collector for an advance, stating the nature and amount of security for re-payment, which is recoverable by the same means as arrears of revenue. But an advance to a tenant is not to be made if the landlord dissents.

Efforts have been made, during many years, both by the various local governments and by individuals, to introduce improved methods of agriculture. The agricultural societies have effected much substantial good by conducting experiments, introducing new plants, and recording information on agricultural subjects; but they have never had sufficient funds to introduce practical operations on a large scale. They have, however, had the merit of acting as pioneers, and their labours have been fairly useful. As regards horticulture they have done much. Among other things, their introduction of potatoes, cauliflowers, and peas, has led to those vegetables being largely cultivated by the natives.

The Agricultural and Horticultural Society of India was established by Dr. Carey in 1820. It imported fruit trees, offered prizes for essays on the cultivation of indigo and sugar, and on the acclimatization of foreign plants. At

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one time it had a farm of 160 acres near Calcutta, which was, however, given up. It now has an income of 3,000*l.* a year, including a Government donation of 500*l.*

The Agri-Horticultural Society of Madras was founded in 1835. It has devoted itself to the encouragement of the cultivation of European vegetables, to the improvement of the cultivation of indigenous fruit trees, and to the introduction of new species. It largely imports and distributes vegetable and flower seeds and trees from other parts of India, superintends cotton experiments, and gives prizes for sheep and poultry.

The Agri-Horticultural Society of Bombay was founded in 1830, and in the following year an annual grant of 300*l.* a year was given by the Government. In 1835 the society bought a piece of land at Suri, and laid it out as a garden, and in 1853 they established an experimental garden at Kirki, where, down to 1861, experiments were carried on at a loss of expenditure over receipts of 1,126*l.* But the only experiments of which a record exists are those conducted by Dr. Birdwood with cotton, and the sorghum or great millet (*imphee*). In his Report, dated May 1861, Dr. Birdwood makes the following remarks with reference to the *imphee* experiments:—

"I deeply regret the poor results of these experiments with *imphee* at Kirki, for I anticipated their success with pleasure. The rapid decay of the manufactures of India invests with the highest importance every attempt to increase the number of its exchangeable raw products. The most trifling articles of native workmanship are being replaced in the bazaars by similar wares from Europe; are being driven from the home markets by the sheer force of Saxon productiveness. Our best efforts, therefore, must be directed to counterbalance the decline in manufactures by a proportionate development of the agricultural wealth of the country; new raw exchangeable products must supply the place of each manufacture as it in succession fails, if the prosperity of India is to be sustained under the circumstances of her dependent and intimate intercourse with western civilization."

As regards the Society's experiments in cotton, Dr. Birdwood recorded the following very important remarks:—

"Had twice as much been expended in India in cotton experiments as has actually been I would still persevere with them. Such experiments are made out of a nation's superfluities, and should be undertaken under the sense that the most of them may fail, certain as it must be that at least one will succeed, or some collateral advantage be gained that shall a thousandfold repay all the accumulated outlay. It is on this ground that agricultural and horticultural societies have been, and economic museums are being, established over the world. It is anticipated that these institutions may for years carry on their operations in vain, but they are, nevertheless, supported (quite independently of their educational service) under the unfailing conviction that, in the end, some economic plant will be naturalized, and some staple brought to the manufacturer's notice through their agency, which shall so add to the wealth of the nation that all previous expenditure will be but as dust in the balance. We must regulate such expenditure, then, not so much by its immediate results as by our means. Attention should be turned to hybridization, as the most likely mode of establishing a larger staple of cotton in the parts of India beyond the influence of the sea and the two monsoons."

The Bombay Society was resuscitated, through the exertions of Dr. Birdwood, in 1859. When he became its honorary secretary it had only 29 members, and an income from all sources of 500*l.* a year. When he left, in 1868, the members numbered 153, with a fixed income of 1,235*l.*, besides special subscriptions. Dr. Birdwood's great work was the establishment of the Victoria Gardens and Museum at Bombay, including a complete botanical garden. The botanical garden was composed of exotic plants first introduced by Dr. Birdwood; of naturalized exotics, such as the cocoa-nut, jowari, tobacco, and many other plants, and of indigenous plants. A sum amounting to 36,000*l.* was raised by public subscription, entirely through Dr. Birdwood's exertions, for the laying out and decoration of the Victoria Gardens. It is much to be regretted that, after Dr. Birdwood left India, the botanical garden should have been destroyed, and that the Society should not have published a single report.

The Agri-Horticultural Society of Lahor was founded, in 1851, for the collection of information respecting agricultural operations, to institute experiments, and to supply members with seed and plants. It has initiated experimental cultivation of the better kinds of flax and of silk; has introduced the olive, the Chinese tallow tree, and the Australian gum tree; has established a school of gardeners; and has distributed seeds and plants.

The Government gardens at Calcutta, Saharanpúr, Madras, Bangalore (*Lal Bagh*), Lucknow, and Utakamand, have also done most valuable service in the introduction

and distribution of new plants and seeds. During 1872–73 the Calcutta garden sent out 8,620 packets of seeds, 2,302 plants in cases, and 2,891 in pots. In the same year there were 3,706 packets of seeds, 4,088 fruit and other trees, and 6,142 flowering plants distributed from the Utakamand garden, in the Madras Presidency. At the Saharanpúr gardens, in the North West Provinces, 37,393 fruit, 156,766 timber trees and flowering shrubs, and 5,530 parcels of seeds were distributed during 1872–73, showing a considerable increase over the previous year. As many as $4\frac{3}{4}$ tons of seeds were supplied to the Canal Department.

Potatoes have become one of the great food staples of the country. They are extensively grown in Kamaun, Garhwal, Kangra, Dehra, as well as on the plains in Saharanpúr, Mirat, Cawnpur, Bulandshahr, and Fathigarh. A small quantity of fresh seeds should be annually imported from Europe to prevent degeneration by frequent renewal.

Owing to ignorance of the country and its agricultural customs, the farms established by Government have not made an average out-turn equal to that obtained by the native cultivators. These farms have been started with the intention of teaching agriculture to the natives of India. The real lesson has been that, given their means, and soil, and climate, it is absolutely necessary first to master their system. In fact, the native cultivators know a great deal more than they were given credit for. They know the value of certain manures. For instance, the shepherds of the North West Provinces raise a regular income by grazing their sheep on the cultivator's land. Their method of deep ploughing is to go frequently over the ground; and they understand the advantage of ploughing in the weeds during the rainy season. Their processes are the results of most careful empirical experiments carried on for several thousand years.

Experimental farming has chiefly been undertaken with a view to improving cotton cultivation and introducing new species; and these experiments of late years have been carried on upon the largest scale in the Bombay Presidency and in the Central Provinces.

In the Bombay Presidency—at least, in the Dharwar district—the introduction of American cotton has been a complete success. The number of acres under cotton cultivation in the whole presidency in 1872–73 was 3,715,945, being an increase of 336,007 since 1871–72. Superintendents of cotton experiments are employed in Dharwar, Gujrát, Khandesh, and Sind. Selection of seeds has been carefully attended to, and a considerable quantity of first-class seed has been distributed. Hybridization has also been persevered with, and in Sind there is every prospect of a valuable crop between the American and Dharwar native. The yield per acre varies very much in the different collectorates. The largest, in Poona, is given at 302 lbs. In Dharwar it is 54 lbs.; in Khandesh, 23 lbs. During 1872–73 there were 2,281 steam engines at work, and 160 steam presses.

Khandesh, Sind and Dharwar are at present the only provinces where there are model farms. The Khandesh farm is not a financial success; but the Cotton Commissioner has urged the advantages which would result from the establishment of permanent Government farms, by affording reliable information regarding the out-turn and money value of the various crops. The Sind farm is at Salaro, in the district of Hála, near Haidarabad; and much useful work is anticipated from it, both as regards cotton experiments, and the introduction of better seed and improved methods. Two other farms are at Dharwar, and near Súrat. Immense sums, in former years, were spent on cotton experiments, especially in the introduction of exotic seeds. But in order to increase the yield per acre, and to improve the quality of Indian cotton, it is necessary to continue such experiments patiently for long periods, and to convince the growers of their value. They must be fully impressed, by continual experience, that a good market is ensured to them, on condition that clean and carefully picked cotton is produced; they must be induced to seek for and use good seeds, so that the staple may be improved, and so strive to produce a larger quantity per acre, through more careful and scientific cultivation.

In 1866 the Government made provision for the performance of some of these duties in the Central Provinces and the Berárs, by appointing Mr. H. Rivett Carnac as Cotton Commissioner. In the following year (1867), 552,520 acres were under cotton cultivation in the Central Provinces, and 1,254,552 in the Berárs, out of 8,500,000 throughout British India. The exports from all India amounted to 1,500,000 bales, out of which 250,000 bales were from the Central Provinces and the Berárs. The great sheet of trap-rock of the Deccan provides the black soil which is so favourable to cotton cultivation, while the railways which traverse the Berárs to

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Nagpur offer facilities for export. Thus, in the valley of the Púrna forming North Berár, 32 per cent. of the cultivated area is under cotton. But the exportation is checked to some extent, because there is a large and steady demand for home consumption. The native manufacturers of finer fabrics have been little affected by the introduction of piece goods from England, and the annual consumption in the provinces is not less than 60,000 out of 120,000 bales. In the Berárs, in 1867, the out-turn was 250,000 bales of 400 lbs. each, of which 207,000 were sent to Bombay for export.

Mr. Rivett Carnac's duties were to promote the introduction of foreign staples, and the improvement of the indigenous plant. Some of the landholders in Wardha were induced to raise cotton for seed on carefully selected garden lands. Fine "bolls" of cotton were then selected and supplied to seed gardens, and cultivators were impressed with the importance of selecting their seeds. By careful selection and careful cultivation of selected seeds, much can no doubt be done to improve the character of indigenous seed. The seed of the Hinganghát district, in the Central Provinces, is considered to be the best. Mr. Ashburner successfully improved the inferior cotton of Khandesh by introducing Hinganghát seed, and the cultivators of Nimar and Berár have also obtained supplies of it. Experiments for introducing exotic cotton have not been attended with any great success. In 1868 three cotton seed farms were established—one of 52 acres in the Wardha Valley, near Hingánghát; a second of 98 acres near Amraoti, in East Berár; and a third of 113 acres near the railway station of Shengáon, in West Berár. The object of these farms was to test the effect on indigenous cotton of deep ploughing, of manure and irrigation, to watch the effect of hybridizing various species on the plan of Major Trevor Clarke, and to instruct the natives. But it seems to be necessary first to convince them that they require instruction. When the Commissioner visited one of the model farms, he got the old head of a village on one side and said, "Now, "Patelljee, tell me really what you think of all this." The Patell replied that the English gardener was an intelligent young man; that he worked hard, and was not quarrelsome, and that considering that he knew nothing about it when he came, his cotton was not much worse than theirs. The sons of several respectable landholders were, however, being trained at the experimental farms, and it was hoped that they might hereafter disseminate the knowledge they acquired.

Mr. Rivett Carnac also took great pains to improve the system of getting the cotton down to the coast. Daily supplies arrived at the railway stations much in excess of the quantity that it was possible to send off by train each day. The yards became full to overflowing. The Cotton Commissioner established cotton yards at 12 railway stations, acres upon acres were covered with cotton bales, divided into squares and streets, every compartment with its watchman and fire-engine, every bale entered in a register, and waiting its turn for loading. Order was thus established where there had been chaos. At Khámgáon, in Berár, there are two large factories for cleaning cotton, and three for full pressing bales with steam power. Throughout the Central Provinces and Berár, there are 21 full and 98 half presses. The half pressing system is chiefly in use, which takes up less space than the dokra or old native bale, but requires repacking for export.

In 1872-73, the area under cultivation in the British portion of Central Provinces was 13,608,016 acres, of which 719,767 acres was under cotton. The number of bales exported was 43,297, of which 24,432 were full pressed, and 39,754 half pressed and dokras. In Berár, 1,666,014 acres were under cotton, and in one part of Akola the natives had taken to the cultivation of New Orleans. The two experimental farms continued to be worked, but with little success. One of them has been converted into a model farm for the cultivation of all kinds of produce likely to do well in Berár.

In the Punjab there are two experimental farms, and in the North West Provinces farms have been established at Cawnpur, Allahabad, and Bulandshahr, under European supervision. The Cawnpur farm was established in 1866, and has achieved much useful work under the superintendence of Mr. Halsey, formerly Collector. The cotton experiments failed to show any improvement over native cultivators, and the farm has not succeeded in establishing any new facts in agriculture. But it has grown, and sent out free of charge, many thousands of young trees for villages and for road making; has distributed many fruit-bearing trees; has made a steady commencement towards improving the seeds of the staples of the country by selection and cultivation; and has proved beyond a doubt that no exotic cotton has a chance in that climate. The Allahabad farm of 259 acres, 159 cultivated by the Government and 93 rented to cultivators, was established in 1871.

It is badly situated, lying low between the Jumna and the Ganges, and is protected by embankments from inundation during the rainy season. Its object is stated to be to graft the English on to the native method, and, by the introduction and selection of better seed, gradually to improve the agriculture of the country. Two methods are, therefore, worked side by side for comparison. The ground is twice ploughed by the English plough with two pairs of bullocks, at the rate of one *bigah* a day, and twice by a native plough, instead of a harrow, at the same rate. It is said that the ground was left in a much better condition than another piece of ground ploughed 18 times by a native plough alone. But frequent ploughing is the efficient native substitute for deep ploughing; and an English plough must be lighter, as well as much cheaper, before it can be adopted in India. The cotton farm at Bulandshahr, consisting of 182 acres, was taken up in 1870; but the dryness of the atmosphere and the cold of November will always prevent exotic cotton from being a paying crop. Nor has the cultivation of native cotton been a much greater success.

The view of Mr. Halsey, who was the acting Commissioner of cotton and commerce during the year under review, is that by careful selection and cultivation, the Indian cotton may be immensely improved. The farms might also be made very useful in trying the adaptability of cheap and light ploughs, such as those used in the United States and in Italy, and in experiments in sub-soil drainage, the absence of which converts culturable fields into a *reh*-covered plain. Mr. Halsey is of opinion that, as the superintendent of one of these experimental farms becomes master of the native system of cultivation, he will see in what way he can systematize their present rotation of crops; what grain crops he can cultivate to advantage in lieu of fallow; and how far he can benefit crops that are now grown without water, by the use of it. He might carry on experiments as to the minimum amount of water required for irrigated crops in their different varieties; on the use of manures; on the introduction of new crops; and on the selection of seed on the pedigree system.

The views of Sir George Campbell, as regards agricultural Government farms in Bengal, coincide with those of Mr. Halsey. He holds that the native agriculturist will beat us until we have as exact a knowledge as themselves of the soil, climate, and plants of the country; which can only be acquired by careful and protracted observation of their modes of farming, by educated English farmers. His plan is not to farm directly ourselves, but to select intelligent ryots to farm after their own fashion, on our land, under the supervision of our agents; giving slight assistance with the object of drawing out the full extent of their knowledge and aptitude as cultivators. In the course of three or four seasons a good European cultivator would then have mastered the whole extent of their knowledge, and would probably be prepared with well considered plans for supplementing the defective resources of the ryots, improving their processes, and introducing new ones. The small model farms of 8 or 10 acres on the irrigation canals, are in course of organization, and there is a garden farm of 100 acres on the canal in Midnapur. There are also to be a home farm of 600 bigahs near Calcutta, a farm of 150 bigahs at Barasat in the 24 Parganas, one of 50 acres under a practical gardener in Orissa, and a tree nursery and orchard of 1,500 acres at Shillong.

In the Madras Presidency, Sir William Denison started a model farm at Saidápet, near the presidency town, which has been very successful and useful, under the management of Mr. Robertson. The farm now consists of 250 acres in a ring fence. One great point established by Mr. Robertson is that green crops can be raised at all seasons of the year. Lucerne, under irrigation, produces a large quantity of valuable fodder; horse gram can be raised under dry cultivation as a green fodder plant, and it improves rather than impoverishes the soil. Yellow cholum (*Sorghum vulgare*) has also been found to be an excellent fodder, more nutritious than turnips, and pays well for high cultivation. Mr. Robertson has also shown that it is only necessary to steep the gram for horses, which has hitherto been boiled, a most important discovery. It is difficult to overrate the value of these experiments, which seem likely to make the green crops under dry cultivation in Madras what root crops are in England, and thus to be the means of furnishing the Madras ryot with far better means of maintaining his cattle than he now possesses. During 1872-73 attention, at the Saidápet farm, was chiefly directed to experiments relating to machines and implements. One great object of the Madras Government is that there should be a system of instruction and of diffusing a knowledge of agriculture. It is intended that sound knowledge should radiate from several agricultural centres of

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which Saidápet is one, and farms to be established in Bellari and Coimbator will be the others. The sites for these farms have been selected; and in order that Mr. Robertson may have more time to devote to this branch of his work, a young graduate of the Cirencester Agricultural College has been appointed as his assistant, and proceeded to Madras in 1873. It is hoped that the instruction thus given to future native superintendents of farms will slowly leaven the agriculture of the whole country. There are native apprentices at Saidápet, and the Maharaja of Vizianagram has sent a nominee to be educated with them. Inquirers visit the farm in increasing numbers, and many private students are expected to resort to the classes as soon as they are established.

In the Madras Presidency there are now 1,678,300 acres under cotton; a considerable increase, particularly in Tinnevelly, Canara, Coimbator, and Cuddapah.

Among the crops raised for sale and export, the most important commercial staple, as regards Bengal, is the jute, which yields a soft fibre 12 feet long. Twenty years ago the ryot who happened to have a spare bit of land, would grow it for his own use. Now, next to paddy, it is the principal product of Bengal.

The fibre was sent home, under the name of *pat*, from 1793 to 1801; and it appears that the word *jute* was first applied to it by Dr. Roxburgh. He got it from the Ooriya *mallis* or gardeners; for in Orissa the name is *jhot*, from the Sanscrit *jhat*, to be entangled. The fibre is obtained from two species of tiliaceous plants, namely *Corchorus olitorius* and *capsularis*, annuals from five to ten feet high, with stalks as thick as a man's finger. The jute is grown chiefly in the districts of Pabna, Dinájpur, Rangpur, Maimansing, Purniah, Julpigori, Bogra, Dacca, Hugli, and the 24 Parganas. The balance of evidence is in favour of *sunu* or high lands as best for jute, low lands as not so good, and laterite or gravelly soils as bad. But there has been no analysis of soils, and the demand has caused all kinds of lands to be used. Jute requires a hot, damp climate, with alternate rain and sunshine, and the land should be well ploughed. Little attention has hitherto been paid to the selection of seeds, and even the bad plants are chosen for seed, as not so good for fibre. The quantity of seed used for a bígah varies from 1 to 6½ seers, and it is sown broadcast and covered with a thin crust of earth by a harrow. The harvest is in July and August, the stalk being cut near the root with a bill-hook. The stalks are then made up into bundles, each of a weight sufficient for one man to carry, and thrown into water for *retting*, where they remain for several days. They are then beaten until the glutinous substance in the bark is washed away, the fibres detach partially, and are then stripped off from end to end. The fibres are then hung up to dry in the sun for a few days, and finally made up into hanks, and are ready for market.

The average yield per bígah is 5 maunds 4 seers, but in the large jute-producing districts it is as much as 6 maunds. The cultivation is carried on by the ryots themselves, who often form themselves into guilds of mutual co-operation, to cultivate the fields and prepare the fibre of each member of the guild in turn. Jute is, however, utilized in many other ways besides the sale of the fibre. The leaves and tops are used as a pot herb, the leaves as manure, the reed as fencing and for fuel, the seed for oilcake, and the root for paper. It seems clear that the jute crops exhaust the soil very much; and that such remedies as manure, rotation of crops, and the observance of fallows are advisable. Some care ought also to be taken in the selection of seeds, in the drying process, and in the time of steeping; for when the manipulation is neglected the fibre loses strength and colour. In 1872 there were 2,549,824 bígahs under jute grown for export, a quarter of this area being reclaimed land, a tenth taken for indigo, and two-thirds alienated from grain crops. The cultivation has improved the condition of the ryots, and has not so reduced the supply of food as to make the reduction injuriously felt. The bulk of the jute tracts are in sixteen districts, where there are 22,498,477 acres of arable land and 876,324 under jute. Details of the jute trade will be found in the Section on Trade and Manufactures.*

The rhea fibre is known to be vastly superior to jute, yet it has failed to become a profitable object of cultivation. The reason of this is well known, and an effort is being made by Government to overcome the obstacle. The rhea fibre of India is the same as China grass (*Boehmeria nivea*), a stingless nettle with a perennial root, whence rise 9 or 10 straight slender stems to about six feet, from the exterior of which the fibre is extracted. It is a native of Assam, and of Rangpúr in Bengal, where it is cultivated by the fishermen near their huts, for making nets. Fresh sets of stems will yield them four or five harvests a year, but the manual extraction of

* See page 112.

the fibre is too laborious to make the cultivation on a large scale remunerative. For this object machinery is essential. When properly manipulated the rhea produces one of the strongest known vegetable fibres, three times as strong as the best Russian hemp. There is practically an unlimited demand for it in English and American markets at prices from 30*l.* to 50*l.* per ton. It is a plant which requires much moisture and a rich soil; but it will grow in many parts of India, and is susceptible of rapid propagation from cuttings. Yet, and although the merits of the plant have been known for the last 60 years, it is not successfully cultivated. Volumes have been written upon it, the Government and the Agri-Horticultural Societies have striven to encourage its growth and to develop a trade in its fibre, but all attempts have hitherto failed. The failure is entirely owing to the absence of suitable mechanical appliances for the separation of the fibre and bark from the stem, and of the fibre from the bark, and to the heavy cost of effecting such separation by manual labour. Thus the only real obstacle to the development of an extensive trade in this article is the want of suitable separating machinery. Existing flax and hemp-preparing machinery has failed where the rhea fibre is concerned. On the one hand there is an unlimited supply, on the other an unlimited demand, with only a single link wanting to connect one with the other. At last, in 1869, the Government of India resolved to offer prizes, sufficiently large to attract the attention of the first European machinists, for the best inventions for securing the manufacture of such rhea fibre, at 15*l.* a ton, as would fetch a price averaging 50*l.* a ton in the English market. The prizes offered were 5,000*l.* and 2,000*l.* for the best and the second best inventions. The trials were to have taken place at Saháranpur in 1872, but, owing to the cost and risk of sending expensive machinery to India, only one mechanist, Mr. Greig, appeared in the field. His machine did not altogether fulfil the conditions, but he was given a *douceur* of 1,500*l.* It is now proposed to have the trials in England. There was some difficulty in taking this course, owing to the necessity for using the stems in a green state, such as they would be in on a plantation. It has been found, however, that China grass is grown on an estate near Marseilles, and the proprietor will undertake to supply a sufficient quantity for the trials, in a green state. This obstacle has thus been overcome, and there is every reason to hope that the ablest mechanists will take the matter up, and that the great object will at last be gained.

The *Crotalaria juncea* is cultivated for a fibre called *sunn*, which is used for hemp and twine in Bengal; but there are no data with reference to the extent of the cultivation. In the Punjab there were, in 1872–73, as many as 47,781 acres under *sunn* cultivation, yielding 391,752 maunds of fibre. The word *sunn* is also applied to the hemp taken from *Cannabis sativa*, which is only cultivated for its fibre in Kamaun and Garhwal. In Bengal it is carefully cultivated for the leaves yielding *bhang*, and the seeds, which are smoked as *gánjá*. The Belfast Flax Company, some years ago, tried a series of experiments to improve the cultivation of flax at Siálkot, in the Punjab, with foreign seeds sown in ridges. The result was very satisfactory; but a sufficient quantity was not grown by the cultivators, and consequently the experiment was eventually given up.

Sericulture has recently received some attention; and a most interesting account of silk in India has been written by Mr. Geoghegan, in consequence of representations made by the Silk Supply Association. The advantage of a further development of silk industry in provinces in India where it already exists, and of its extension to other provinces, was obvious; and the first thing needful was to collect information on the subject, so as to make a general review of all industries connected with silk in India. The East India Company took great pains to foster the production of silk. The planting of mulberries was urged on the zemindars in Bengal, and in 1769 a staff of reelers was sent out from Italy to set on foot, in the Bengal filatures, the system pursued at Novi. The first silk prepared in the Italian method reached England in 1772, and Bengal silk soon became an important article of export to England. When the trading operations of the East India Company came to an end in 1833, its connection with silk culture ceased. At that time 956,453 lbs. were exported. There were then 11 head factories in Bengal, each with a commercial resident, with filatures throughout the district, to which the cocoons were brought. An attempt was also made to foster the production of silk in Madras by Government aid, in 1793, but it was abandoned in 1798. The Company effected great improvements in the reeling and drying, but none in the culture of the mulberry, or in breeding and rearing the worms; and since the trade has passed into private hands no active measures have been taken for the promotion of this industry. The quantity

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exported from Bengal has not varied in the last 30 years, being about 1,500,000 lbs.; but the price has nearly doubled. The cultivation in Bengal is mainly carried on in the districts of Rájsháhi, Birbhúm, Maldah, Murshidabad, and in Assam. In Rájsháhi there are 34 filatures owned by Europeans, and 63 by Natives, having 5,760 basins, and employing 10,000 hands. The yield of raw silk is 5,000 maunds, and 150 square miles are under mulberry cultivation. In Birbhúm the silk industry, of an annual value of 160,000*l.*, supports 15,000 persons. In Assam the mulberry is grown in small patches; two kinds of worms are reared, and a fine white silk is produced. A very considerable quantity of tasar silk is raised in the Chattisgarh country, in the Central Provinces, the worms being fed on the sál tree. The only other province where sericulture is practised to any extent is Mysore, where the mulberry gardens occupy 18,443 acres, or 31 per cent. of the cultivated area. Here it is a profitable culture, the value of the silk annually produced being 55,000*l.*; the cultivation is said to have been introduced by Tippoo.

In other parts of India sericulture may be said to have been confined to experiments which have hitherto been more or less abortive. In 1854-56, Mr. Bashford, the superintendent of the Sarda filature in Bengal, made some experiments in crossing; and Mr. Fox, in 1867, began an experiment in Sháhabad, but the trial came to an end after three years. Signor Lottei, in 1859, drew attention to the munga worm of Assam, as being capable of yielding silk, with care and better reeling, to compete with that of China; but his application for a grant of rent-free land to improve the munga worm was refused. In Bombay, Mr. Baker introduced worms from Mysore into Dharwar, 50 years ago, and the cultivation took root for a time, but cotton has since driven silk out of the field. The exertions of Signor Mutti at Poona, between 1838 to 1846, though under Government auspices, ended in failure, and there was a similar result in Khandesh. More recently a small experimental farm was established by Messrs. Dymes at Ussur, in Madras, in 1868; and Signor de Vecchi erected a filature near Bangalore, purchased cocoons largely, took much trouble to improve the native worm, and endeavoured to acclimatise the Japanese species; but he has since left the country, discouraged at the results of his efforts. In the Punjab, several experiments have been tried by Mr. Cope and others, and the late Sir Donald McLeod took a deep interest in them. The Maharajah of Kashmir has also taken steps to encourage sericulture in his dominions. But it is only in Assam, Bengal, and Mysore that silk is produced to any extent.

There is, however, another branch of the industry connected with the wild spinning insects of the jungle, called tasar and eria. In 1858, Dr. Birdwood proposed the utilization of the wild worms found in the Bombay Presidency; and, in 1856, Captain Hutton, of Masúri, represented the existence of certain wild silk worms in the Dehra Dun; but no useful result attended his experiments. He, however, maintains that Masúri is a capital place for rearing the ordinary silk-producing moths; and in 1871 he prepared a most valuable monograph for the Government, on the known Bombycidæ of India. The Tasar insect is found all along the Sub-Himalayan range, and in forest-covered hills to the south of the Ganges, and it has, for centuries, been an article of trade. It feeds on the sál, the jujub, a *Terminalia*, and other forest trees; and the seed is purchased from the jungle people by the rearers, who raise the worms on trees, and keep guard on them with pellet bows. The tasar silk is much used in native fabrics, but the yield is diminishing as cultivation extends.

The numerous unsuccessful experiments are certainly discouraging to some extent; but it is certain that several parts of India are well adapted for sericulture; and judicious steps should be taken to promote it. With this object the Madras Board of Revenue (February 1872) would limit cultivation to localities where it is still carried on with some success, and would distribute mulberry seed to the best growers gratis. They would go so far as to establish nurseries in carefully selected centres, to hatch and improve the breed by selection and distribution gratis, but would not extend Government operations to reeling silk. In Bengal it is a staple industry of the Rájsháhi and Burdwan districts; and about 9,000 bales are exported from Calcutta.

Attention has been given by Dr. Bonavia, the Superintendent of Science in Oudh, to the cultivation of the date palm in that province, where it has been found to grow well. The paper by Mr. Edwards, on the cultivation and preparation of the date has been translated into Urdu, for distribution among the natives to whom seeds are given; and an arrangement has been made with the Political Resident in the Persian Gulf for a yearly supply of seeds and cuttings of the date palm for planting

in Oudh. In October 1872, a favourable report was made on the progress of this cultivation. Jessor and Naddea are the great date-growing districts of Bengal, where there is an enormous local consumption of date sugar. The trees are grown in clusters round the houses of the ryots, a hundred trees often being planted on a bígah of land.

The cultivation of tobacco was introduced into India in the year 1605, during the reign of the Emperor Akbar. The Emperor himself never took to smoking, but he said, "Truly, we must not reject a thing which has been adopted by the wise men of other nations, or how shall we progress?" Then merchants began to sell tobacco, and so the custom of smoking spread rapidly in India.* The cultivation of the plant followed, and now almost every district grows more or less tobacco, each village having its patches, as garden crops. Numerous efforts have been made to improve the Indian tobacco, commencing with the action taken by the East Indian Company in 1829, when some Maryland and Virginia seed was sent out, with a paper by Captain Basil Hall, describing the Virginian mode of culture. The produce from this seed was pronounced to be very good. Madras, where the climate is admirably suited for the growth of tobacco, stands first with regard to the development of this industry. The value of tobacco exported from Madras in 1871–72 was 5½ lakhs of rupees, of which less than a fifth went to other than Indian ports. Dindigul is the great tobacco district, and cheroots are manufactured at Trichinapali. The islands in the delta of the Godavari also yield what is called *Lunka* tobacco, the climate being suitable, and the plants being raised on rather poor light soil, highly manured, and well watered. In 1866 both West India and Shiraz seeds were tried in the Godávari *Lunkas* and in Madura and Coimbator, and Mr. Broughton, the Government quinologist, has made some valuable analyses. Manilla seeds have also been successfully tried on the Lower Palnai hills, but Wynaad is the best locality for a tobacco experiment, where it has not yet been tried. Almost every kind of seed has, however, been tried by Agri-Horticultural Society of Madras, and has thriven to perfection. The failure has been entirely due to carelessness and want of skill in the preparation.

In the Bombay Presidency the Kaira and Khandesh tobacco is of superior quality. Altogether over 40,000 acres are under tobacco in this Presidency, and both the exports and imports show an increasing trade. The former amounts to 3,000,000 lbs. Numerous experiments have been tried with Shiraz and Manilla seeds, which yield good plants in Gujrát and Kandesh.

In the Punjab over 90,000 acres are under tobacco; in Oudh, 69,574; in the Central Provinces, 55,000; in Behar, 18,500; in Mysore, 20,000; in Burma, 13,000; and in Bengal, owing to the absence of statistical information, the area under tobacco is unknown, but it is believed to be over 500,000 acres. Most of the tobacco grown in India is for consumption in the districts where it is raised. Indian tobacco is not esteemed in the English market because it is so badly prepared. It is a crop requiring high cultivation, and experienced curers from Manilla must be engaged to instruct the cultivators. Such measures for the improvement of this industry will benefit Indian agriculture generally.

The introduction of the cultivation of Carolina rice into India will probably add another high-priced crop to the number of its products. The experiments were commenced in 1868, when 15 barrels, containing 1,725 lbs. of seed, were sent to Bombay. A second supply of 19 barrels went out in 1870, and a third in 1871. The Government of India received 200 barrels of seed early in 1872, which was widely distributed. From Bombay it is reported that although the results have not been successful, several Collectors desire to continue the experiment. In Madras it is also considered expedient to persevere with the trials. The Carolina paddy is said to be in every way superior to the native paddy, but to require a higher system of cultivation. The Carolina kind must have a healthy soil, resting on a moderately porous sub-soil, through which the irrigation water must pass. The Carolina kind feeds deep down in the soil, while the country paddy is a surface feeder. Hence land with a healthy surface only three feet deep, can never produce a good crop of Carolina rice, though it may yield a fair crop of the country variety. In Mysore the experiment has been carried out to a small extent with encouraging results; the requirements for success being said to be deep ploughing, plenty of manure, and good drainage. In Bengal, out of 107 cases reported, 32 are stated to have been successful and 62 doubtful. The Carolina rice is much more highly priced than

* See an interesting account of the introduction of tobacco into India, in the forthcoming volume of Elliot's Muhammadan Historians (Vol. vi).

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ordinary rice. On the other hand it requires special conditions, and the cultivation is more costly. The question is whether the extra expense of cultivation can be covered by the increased value of the crop.

Indigo cultivation has increased in Bahar, while its area has diminished in Bengal. In Maldah, Murshidabad, and Rájsháhi the constant changes in the River Ganges supply ample alluvial soil, well adapted for indigo crops. In Maldah alone there are 20 working factories, turning out 2,000 maunds. But over half the exported produce is from Bahar, and almost entirely from the districts on the north side of the Ganges, Tirhut, Champarum, and Sáran. In 1872–73 the export of indigo from Calcutta amounted to 162,860 maunds, worth 2,704,408*l.*

The mountainous districts of India yield valuable crops of coffee, tea, and chinchona, while ipecacuanha is about to be added to the list of hill products. Many hundreds of acres have already been cleared in the hill districts, where rows of coffee and tea plants have taken the place of tall forest trees and tangled underwood.

The extension of coffee cultivation in the hill districts of Southern India has been very remarkable. It was commenced experimentally in the Wynaad in 1840, and in 1862 there were 9,932 acres under cultivation in that district alone. In 1865 Wynaad coffee cultivation had increased to 200 estates, covering 14,613 acres. The exports in 1860–61 amounted to 19,119,209 lbs., and coffee cultivation has thus become a very important and increasing source of wealth. In 1873 the total number of acres under coffee was 29,595, in 6,913 holdings, of which 195 belong to Europeans and 6,718 to natives. The recent high prices obtained for coffee have given a great impetus to cultivation both by Europeans and natives; and the latter are opening large estates which are now well-planted and cultivated. In south Wynaad especially, every available piece of forest land is being opened, and land is sold at *Rs.*40 to 60 per acre. The danger is that when prices fall, a large area of fine land will be allowed to go to waste, as has already been the case with thousands of acres of the best land all over the district. The estimated produce of the Wynaad coffee crop for 1872–73 is 83,500 cwts. In the mountainous province of Curg the cultivation of coffee by European enterprise was commenced in 1854, and there are now 73,306 acres under cultivation, a slight decrease since last year.

Tea cultivation is now carried on in Assam, Cachar, Silhet, Chittagong, Darjiling, and Kangra: the industry having sprung up within living memory. Before the annexation of Assam, two brothers, named Bruce, penetrated into the country, and one of them brought down the first tea plants in 1826. A Tea Committee, consisting of Dr. Wallich, Dr. Griffith, Dr. McClelland, and others, was appointed by the Government in 1834, and, proceeding to Upper Assam, established Mr. C. A. Bruce as overseer of a Government tea estate. A supply of China tea seeds and plants was then procured, and some tea makers and artizans were introduced in 1837. The Assam Tea Company was then formed, and the Government made over two-thirds of its gardens and nurseries to it. But for years the Company made no profits, and in 1846 its 20*l.* shares sold at 2*s.* 6*d.* In April 1849 the Government, having successfully created a new industry, withdrew altogether from active participation, and handed over the rest of its estate to a Chinaman who was employed on the gardens. The affairs of the Company began to improve in 1852; and Colonel Hannay then commenced the first private garden of any importance in the Debraoghur district, in Lakhimpur. In 1853 there were six tea estates near Debraoghur, and three in Sibsagar. From that time the tea planting continued to make steady progress; by 1858 there were 50 private tea gardens, and the Assam Company's shares were at a premium. From 1859 to 1863 the tea industry advanced with rapid strides, and several companies were formed. But a dangerous spirit of speculation was induced by this prosperity. In 1863–65 there was a rush to secure waste lands, and to bring portions under nominal cultivation, with the intention of disposing of them at enormous profits to newly-formed companies. Then, from 1866 to 1868, there was as rapid a deterioration in the value of tea property. In 1868 a Government Commission was appointed to enquire into the causes of the disaster, and a mass of evidence was recorded, resulting in a valuable report. At last, in 1869, there was a favourable turn of affairs; and at present the prospects of the tea industry, in India, are far better and brighter than they have ever been before. In 1850 there was one tea estate, that of the Assam Company, with 1,876 acres under cultivation, yielding 216,000 lbs. In 1870 there were 295 proprietors of tea estates with 31,303 acres under cultivation, yielding 6,251,143 lbs. of tea. In 1872–73 the area of land held by tea planters covered 804,582 acres; of which about 75 000 were under cultivation, yielding 14,670,171 lbs. of tea, the average yield per

acre being 208 lbs., which is amply remunerative. In Kangra, the Punjab tea district, there are 28 plantations including 7,732 acres, of which 3,292 are planted. The average yield per acre is 130 lbs., and the crop of 1872 gave 428,655 lbs. of tea. In the Dehra Dun there are 7,801 acres under tea cultivation, yielding 411,548 lbs., and in Kamaun 1,395, yielding 285,700 lbs. In Dehra green tea is almost exclusively manufactured for the Kabuli merchants who supply Central Asia, where only the green leaf is in demand. The trade is increasing, and the Central Asian demand has been a great advantage, as the planters now get at their very doors the same average price as they before obtained in Calcutta, after incurring the risk and cost of the journey.

Chinchona cultivation, which was introduced into the hill districts of India from South America in 1860, has now passed through all the great perils and difficulties of its experimental stage, and has assumed its place among the important permanent measures of the Government. Unlike tea and coffee, the chinchona plant had never before been cultivated. It was brought direct from the wild forests, where, in an incessant struggle for existence with other trees, it grew under many disadvantages. Everything with regard to its cultivation had to be discovered by actual experiment. The total expenditure has been under 70,000*l.* The return represents a value which is simply incalculable and without price. But the mere interest on the outlay will soon be highly remunerative: There are now 2,645,373 plants on the Government plantations on the Nilgiri hills alone; and the area covered amounts to 950 acres. Among the private plantations that at Balmadies, belonging to Mr. Rohde, has an excellent aspect, and consists of splendid trees. This estate was commenced in 1866, when 31 acres were planted, which in May 1868 was extended to 60 acres. Last year a considerable quantity of bark from Balmadies was sold in the London market, fetching good prices. The Devi Sholah plantation covers 600 acres, of which 450 are planted; Ossington consists of 400 acres; and there are many other plantations, among which may be mentioned those of Dr. Colvin Smith, Mr. Phillips, and Mrs. Morgan. The beautiful trees, with their glossy rich green leaves and fragrant racemi of flowers, cover the slopes of the mountains which overhang Wynaad, and line the hill sides almost to the peak of Dodabetta. The tallest tree is now 36 feet high, and 28 inches round the stem. The amount of green bark supplied to the quinine manufactory on the plantations during 1873 was 91,773 lbs., from which Mr. Broughton, the quinologist, manufactures a febrifuge alkaloid, at *Rs.* 1½ per oz., which is supplied to the medical stores. Thousands of fever patients are thus annually cured. In November 1873 the sale of 25,000 lbs. of Nilgiri chinchona bark, belonging to Government, took place in the London market, and realised 3,490*l.*, the average price secured being 2*s.* 10*d.* per lb.; while one parcel was sold at the very unusual price of 5*s.* 9*d.* per lb. If this average is applied to the 91,773 lbs. used in the manufactory in India, it will place its value at 13,000*l.* This makes the annual income of the plantation about 16,500*l.*, which will increase in future years. Chinchona cultivation is now entirely out of the category of experiments; and soon the grand object of this beneficent measure will be secured, by the provision of an abundant supply of the febrifuge, at so cheap a rate as to be within the means of the population at large.

Besides the great chinchona plantations on the Nilgiris, the fever healing trees are flourishing on the Palnai hills, in Travancore, and in Wynaad. There is a small plantation at Mercara, in Curg, which is about to be extended; and 24,000 trees on the Bababudin hills in Mysore. At Lingmulla, on the Mahábaleswar hills, in the Bombay Presidency, a chinchona plantation was formed in February 1864. The climate, however, was not suitable. In 1873 there were 10,203 trees; but they have been injured by want of sufficient water and heavy gales of wind. There are also 20,000 plants in the nursery ready for planting out. The results of analysis of the bark by Mr. Broughton are on the whole encouraging.

At Rungbi, near Darjiling, 2,000 acres are under Chinchona cultivation; the bark has been sold in the London market at prices ranging to 1*s.* 3*d.* per lb.; and enormous quantities of bark have been stored for local manufacture. A quinologist has been appointed to reside at the plantations, with a view to an efficient febrifuge being manufactured at so cheap a rate as to be within the means of the natives of Bengal, who will thus participate in the benefits which their brethren in Madras are already enjoying. Mr. Wood, the quinologist, arrived at his post in the autumn of 1873, and has been furnished with a laboratory. The great problem is to discover the cheapest form in which an efficient febrifuge can be manufactured from the bark; and in the Report for 1873 there is every reason to expect that valuable results may be announced from Mr. Wood's labours. He has already manufactured

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a form of the alkaloid, taking his supply of alkali from the ashes of the *Artemisia* plant, which grows in abundance on the Sikkim mountains, and is very rich in potash. In the Sittang division of British Burma Chinchona plantations have been formed by Captain Seaton, the conservator of forests, at two places, about 3,700 feet above the sea, one to the north and the other to the south of the Thoukyeghat river, east of Tounghu. The main plantation now contains 354 plants fairly established.

Cardamoms form another important product of the hill districts, chiefly on the western slopes of the mountains of Curg and Mysore, at an elevation of from 2,500 to 5,000 feet above the sea. In February the cardamom growers proceed to the forests, and mark one of the largest trees, on the steepest declivity. The ground at the foot of the tree is cleared of brushwood, and the tree is felled at about 12 feet from the ground. It falls down the side of the mountain head foremost, carrying a number of smaller trees with it in a great crash. Within three months the cardamom plants begin to show their heads all over the cleared ground. During the rains they grow two or three feet, and 20 months after the felling of the tree, when the cardamom plants are the height of a man, the ground is thoroughly cleared of weeds. In the following April the fruit-bearing branches shoot forth, and become covered first with clusters of beautiful flowers and then with capsules. In the following October the first crop is gathered, and the harvests continue good for seven years, when they fall off. Then another giant of the forest is felled, and the process is renewed. The gathering in, entailing a walk of several miles through wet underwood covered with leeches, is very hard work. In Curg the cardamom forests are rented out for *Rs.* 30,000 a year. In Mysore the yield is valued at 17,000*l.* Instructions were given in 1871-72 for the demarcation of such tracts of jungle as were favourable for the growth of this spice, and coffee planters are beginning to turn their attention to its cultivation.

In 1870 it was resolved to undertake the cultivation of the ipecacuanha plant in India, the medicine from which is so useful in cases of dysentery. Professor Balfour, of Edinburgh, undertook the propagation of the plant in the gardens there, by dividing the peculiar annulated root, cuttings of which give off young shoots. By this means numerous plants were produced very rapidly. In May 1871 a case of 12 plants, and in October another containing 74 plants, were despatched to Calcutta, and the majority reached their destination in a healthy state. In July 1872 a further supply of 112 plants, and in November 1872 another of 68, were sent out. It is believed that the ipecacuanha plant will thrive best in the valleys on the outer slopes of the Sikkim Himalayas, which open towards the Terai. A fine small valley near Sukna, at the point of entrance into the hills of the cart-road to Dárjiling, has accordingly been taken up as an ipecacuanha reserve. There are now 23,000 cuttings, and a permanent plantation was to be commenced in 1874.

The Cochineal insects have been imported into Mysore from Teneriffe. They have taken kindly to the acclimatised cactus; the climate is suitable, and the experiment promises well.

In 1869, Lord Mayo's Government came to the conclusion that the time having come when the great importance of obtaining exact information as to the natural capabilities of the land and water of the vast empire of India is beginning to be fully and clearly appreciated, an effort should be made to utilise to the utmost the fishes of the rivers and coasts as sources of food to the population. Dr. Day, who was already well known as the author of an important work on the fishes of Malabar, was therefore appointed to make inquiries respecting the fisheries throughout India on a comprehensive system, and to submit reports on any matters relating to the utilisation of the natural resources of the rivers and seas, which seemed to him to deserve the attention of the Government. Dr. Day commenced his investigations in Orissa, and went thence to Burma. He has also reported upon the Punjab, North West Provinces, Assam, Sind, and Madras. He treats of the fresh water fisheries of India under five heads: namely, wasteful destruction, the fishermen, the fisheries, the fish, fish in an economic point of view, and the effects of a fish diet. There seems to be a concurrence of opinion from all parts of India that there is, at present, a wasteful destruction of fresh water fish, either by poisoning, or by the use of meshes so small as to catch all the small fry The invariable rule, among fishermen of every cast and creed, is to get everything they can, irrespective of the season, entirely oblivious of next year's supply. The consequence is that the waters are insufficiently stocked. Dr. Day has no doubt that, if the fishes were allowed fair play, an increased supply would be the result. He recommends the prohibition of trapping and snaring the breeding-fish during the monsoon months, by regulating

the sizes of the meshes of nets, or the interspace between pieces of rattan or reed. This would permit the breeding fish to deposit their ova, and return to the rivers from which they ascended for that purpose. He would also forbid poisoning and other wholesale methods of destruction; and would provide fish ladders at the weirs or anicuts.

The large fish-eating population gives great importance to these questions. The whole of the indigenous population of Burma eat fish. In Canara, Mr. Thomas, in his interesting and exhaustive report, mentions that 760,160 out of a population of 839,688 are fish eaters. In Orissa fish is almost universally eaten, and very largely in Bengal, the North West Provinces, and the Punjab. A series of questions, drawn up by Dr. Day, has been circulated, in order to elicit opinions and to obtain materials for a more comprehensive report. Meanwhile, the Secretary of State has drawn attention to the conclusions of the Sea Fisheries Commissioners in England, who recommended unrestricted freedom of sea fishing, while, even in estuaries, they reported that the natural increase of fish is so rapid and great as to be little affected by man's destructiveness. It has also been enjoined that, in framing regulations for the fisheries, care must be taken that they are of such a nature as to interfere as little as possible with the habits and welfare of the very poor class of people engaged in earning a livelihood from fishing.

A general review of the whole of the results of Dr. Day's inquiries will hereafter be made by the Government of India, and a decision will then be formed on his recommendations, and on the most advisable measures for the maintenance of supplies of fish.

The breeding of stock has received much attention in all parts of India. Great pains have been taken, especially in Madras, to improve the native sheep, and sheep have been introduced into the Punjab and the North West Provinces, from England, while shows and prizes have stimulated the breeding of cattle. As regards horses, the Madras and Bombay armies depend on the open market for their supply, but in Bengal Government studs have long been established to supply the army in that Presidency with horses. In 1794 a very unsuitable locality was selected in Tirhut for the purpose of breeding stock, and in 1808 Mr. Moorcroft, an experienced veterinary surgeon, was sent out as Superintendent of Studs. He organized the department, sent officers to Persia and Arabia to buy stallions and mares, and in 1819 he himself penetrated across the Hindu Kush to purchase Turcoman horses, and, as is well known, this intrepid explorer died of fever near Balkh. From time to time commanding officers expressed general dissatisfaction at the remounts supplied by the stud, and a Committee, appointed in 1851, exhibited very unfavourable results; but in 1860 Lord Canning recommended the continuance of the system, to which Sir Charles Wood agreed, but at the same time adduced arguments in favour of making India self-reliant in respect of the supply of horses.

The studs are in two divisions, the central at Poona, Baxar, Ghazipur, and Karunthedi; and the North Western at Hapur, Saháranpur, and Karnal. In the Central Division the mares purchased or bred by the Stud Department are lent to farmers, and covered by Government stallions; and the farmers are bound to sell the foals to the Department at eight months old. The foals so purchased are sent into various depôts, until they are old enough to be presented as remounts. In the North West Provinces the mares belong to the farmers themselves, are registered by Government and are served by Government stallions. There are about 18,000 mares on the register, and 328 stallions belonging to the stud. There is also a home system under which both stallions and mares belong to Government. There was a home stud at Hissár which was discontinued in 1842, and in 1865 it was re-established at Karnal, where there are English mares sent out in 1866 and 1867, some of the stallions sent out by the Secretary of State, and several mares from New South Wales. Twenty stallions were sent out to India by the Secretary of State, every year from 1861 to 1865, 13 in 1866, 19 in 1867, 10 in 1868, 2 in 1870, and 6 in 1872. The Government of the Punjab also gives much encouragement to the breeding of horses, providing stallions in the best breeding districts, and offering prizes for the best animals exhibited at the different agricultural meetings.

An annual supply of 750 to 800 horses is required for the Bengal army, but the Stud Department is not able to supply more than 500. In 1868 there were almost unanimous reports as to the badness of the remounts, and Lord Mayo appointed a second Committee to inquire into the general management of the

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Government studs. It was found that the Department cannot supply the number of horses required, that the prices of its horses are exorbitant, that it has extinguished private enterprise, and has failed to improve the indigenous breed of horses. In consequence of the report of the Committee, the Government of India resolved to abolish the asami system and to establish a new breeding stud in the Punjab on the home system.

The Home Government, however, have come to the conclusion that the proper direction in which the efforts of Government should tend is towards the encouragement of private enterprise. Various excellent breeds of horses have existed in India, in Katiwár, in the Bhima Valley, and in the Punjab; and with proper assistance and encouragement, the breeding of horses for the market would probably again revive as a profitable enterprise. India also receives foreign supplies from the Persian Gulf, Central Asia by Kabul, Australia, the Cape, and England. Instead of Government studs, it is proposed that stallions be furnished in the best breeding districts, that prizes be offered for promising brood mares and young stock, and that liberal prices be given for suitable three or four year old colts. With such judicious encouragement it is anticipated that the ancient and successful practice of private horse breeding in India will revive.

In the Bombay Presidency a good deal is already being done in this direction. The Government have 59 stallions distributed over the country, 7 English, 49 Arabs, 1 Australian, 1 country-bred, and 1 Gulf Arab. In Ahmadabad there are also three Government bulls, the services of which are much appreciated by the breeders; and Mr. Borradaile, the Collector, zealously promotes horse and cattle breeding in his district. In all the districts the Government stallions are much sought after, and their services are fully appreciated by stock breeders. Annual horse shows have been held at Ahmadabad since 1869 with great and increasing success. At Sírùr, also, near Poona, there is an annual horse show in January, when prizes are awarded for the best young stock, the produce of Government stallions, and for mares in foal. Country breeders readily attend the show, and it promises to become, year by year, more attractive. Another annual horse show takes place at Dehwari, in Sátára, at which prizes are awarded. In the Punjab, where there are 37 Government stallions, the Lieutenant Governor has determined to make Ráwalpindi a centre of operations connected with horse breeding; and another will be formed on the Derájat frontier, where there are many first-class mares of the Biloch and Sagar breeds. A horse fair is held at Rawalpindi, where every inducement is offered, by means of prizes, to breeders of the best animals, and at the last fair in March 1873, 847 horses were exhibited against 596 in 1872. The fair is increasing in popularity as a market for the sale of stock, independent of the prizes given by the Government to encourage a better breed. The show of mules was also good. It is expected that, in a few years, the Rawalpindi horse fair will produce a good supply of artillery horses. There are cattle fairs at Hissár and Sarsa, the centres of the grazing districts in the Delhi region, at which upwards of 25,000 people assemble, some of them coming from distances of 200 miles. The most successful cattle show in South India is that which was periodically held, for a succession of years, at Nellor, through the influence of which the breed of cattle was certainly improved. It was begun by Mr. Dykes, the Collector, who took a deep interest in it.

THE

RIVERS OF INDIA

THE

AREAS OF THEIR BASINS

AND

THE LENGTHS OF

THEIR

MAIN STREAMS.

	Area in English Square Miles	Length in English Statute Miles
Ganges	391,100	1514
*Indus	372,700	1800
Brahmaputra ..	361,200	1800
Irawadi	150,800	1060
Godavari	112,200	898
Krishna	94,600	800
*Thar Desert ..	68,700	—
Salwen	62,700	750
Mahanadi	43,800	520
*Western Ghats, West Coast Basins	41,700	—
*Narbada	36,400	801
Arakan Basins ..	29,700	—
Kaveri	27,700	472
*Katiwar & Kach Peninsulas ..	27,600	—
*Tapti	27,000	441
*Luni	22,400	320
Orissa Coast Basins	22,200	—
Ponnar	20,500	355
Sitang	18,300	230
*Mahi	15,500	350
Brahmani ..	15,400	410
Tenasserim Coast Basins	14,200	—
Baitarani	11,900	345
Subanrekha ..	11,300	317
Gandlaganga, &c., Coromandel Coast	10,300	—
Vaigs	9,800	130
*Sabarmati ..	9,500	200
Palikat, L., &c.	6,700	—
Palar	6,300	220
*Western Banas	6,300	180
South Ponnar ..	6,200	245
Vellar	4,500	—
Vaipar	3,900	—
Tambaravari ..	3,600	80
L. Kolair, &c. ..	3,100	—
*Dhardur	1,800	—
Total Area of the Indian Basins ..	2,071,500	
Basins of the Bay of Bengal	1,441,900	
*Indian Basins of the Arabian Sea ..	629,600	

IRRIGATION.

IRRIGATION is a necessity for a large section of British India, is of incalculable importance to the cultivators over a still larger area, and is unnecessary only in two limited bands of territory, where the rainfall is excessive. The map, showing the amounts of rainfall by tints of colour, exhibits this very clearly. In the north-west corner of India there is an arid region, including all Sind and half the Punjab, where the normal annual rainfall is less than 15 inches. Here irrigation is essential to the existence of the people. Next, there are two zones of dry country, with an annual rainfall between 15 and 30 inches. One surrounds the arid region on the north and east, in a belt from 100 to 200 miles wide, and has been named by Dr. Brandis the Northern Dry Zone; it includes Delhi and Agra. The Southern Dry Zone is in the peninsula, extending from Nasik to Cape Comorin, at a distance from the two seas. These dry zones also stand in absolute need of irrigation. The next region has a rainfall between 30 and 60 inches, and includes the upper part of the valley of the Ganges, Central India, and the Eastern Coast of the Madras Presidency. Here irrigation is also much needed, and great distress has been caused by the want of it. The fifth region has a rainfall between 60 and 75 inches, and comprises the deltas of the Mahánadi and Ganges, and the lower part of the Ganges valley. In this more favoured belt, irrigation may be looked upon as a luxury, often useful, but not absolutely necessary, except in extraordinary years. Finally, there are two belts of excessive rainfall, where irrigation is unnecessary, the one extending from the mouth of the Irawadi, along the east coast of the Bay of Bengal, up the valley of the Brahmaputra, and along the skirts of the Himalaya; the other along the west coast of the peninsula, from the sea-shore to the summits of the ghauts.

The Governments of India have always, and especially of late years, given much attention to the supply of water for the irrigation of those parts of the country which most need it. Gigantic works have been undertaken, and many have been completed in the arid region, in the dry belts, in the less dry tracts, and even in the belt where artificial supplies are more or less a luxury. Still very much remains to be done, and the progress of our efforts to supply the various regions with water for irrigation, and so to secure the inhabitants from famine, will be best considered by dividing the subject according to the principal river basins. First in order will come the basin of the Indus, the abode of the first civilized race in India, and consequently the region where irrigation was first practised: it includes an area of 372,700 square miles. Then the Ganges River basin, covering 391,100 square miles, and that of the Mahánadi. Next the basins of the Tapti and Narbada; and, finally, those of the rivers emptying themselves into the Bay of Bengal, on the eastern coast of the peninsula.

The Indus basin divides itself into two parts, the first comprising the Punjab, where the six rivers spread out like a fan; and the second and lower being the valley of Sind.

The relative requirements and needs of the Punjab, as regards irrigation, are very clearly exhibited by the rainfall map. When the six rivers issue from the Himalaya, they come upon a narrow belt at their feet, where the supply of rain is plentiful. The rivers then enter the northern dry zone, where they spread wealth and fruitfulness along the banks; but at the same time, in the course of ages, they have cut deep down through the soil, and left high land on either side, the valley being from 10 to 50 feet below the central plateau. The fertility is consequently confined to the low valleys, four to ten miles wide, over which the rivers meander from side to side in the course of ages, and are only checked by the steep scarps which they have themselves gradually formed. The low land by the rivers is called *khádar*, and the high and sterile tracts on either side *bángar*. The *bángar* lands form the doabs between the rivers. Though the soil is fertile, cultivation must depend upon the scanty rain, unless it be supported by artificial irrigation. Large portions of the *bángar* are covered with grass or brushwood, or are entirely waste. The general surface of the Punjab slopes southward from the Himalayas at a considerable gradient, and as the rivers converge, the depth of the river beds below the plain is reduced and eventually the *bángar* is lost sight of, and low *khádar* extends right across between the rivers. But here the rivers enter the arid region, where

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there is scarcely any rain, and which would be a scorched and uninhabitable waste if the water from the Himalayas was not led over it to convert it into a garden.

The different kinds of irrigation required by such a country suggest themselves. Near the foot of the Himalayas, and in the upper valleys and khádar land, where water is under 25 feet from the surface, irrigation is supplied from wells. In the low tracts, where the rainfall is less than 15 inches, water must be led from the rivers during the season of inundations. The perennial canals, which can only be constructed at vast expense, and when great engineering skill can be obtained, are necessary for the high and rainless tracts of the four doabs, where wells are too costly, and to which the inundation waters could not be brought. These doabs have excellent soil, and only require water to become fertile.

During the period of native rule, well irrigation and that from inundation canals were alone available. By these canals the district of Multan, between the Satlej and the Chenab, where rain hardly ever falls, is converted into a succession of beautiful gardens shaded by date palms. There is a burning sun above and canals flowing below. During the winter the water of the rivers is not sufficiently high to enter the canals, some of which are artificially excavated, while others are merely channels abandoned by the rivers; but as the rivers rise in the spring, from the melting of Himalayan snows, the water gradually enters the channels, which obtain their maximum volume in summer; so that, when water is most needed, when the sky is brass and the earth iron, the inundation canals from April to October produce luxuriant crops. The corn, before yielding its grain is twice mown down as fodder for cattle, and then ears, and produces abundant harvests. The mangolds are only second to those of Mazagon, and oranges and pomegranates grow in profusion.

In Multan the main canals were considered the property of the Government, but the annual repairs and clearances were and are done by the people. The *kardar* of the district demands as many labourers as he considers necessary, according to the extent of the clearance required. The landholders then form *punchayats* or committees, and fix the portion of the general burden to be borne by each village, with a scale of fines for defaulters. The system is worked by *cher* or statute labour. In 1872-73 the number of statute labourers who came to work at the clearances was 512,358; and their work materially reduces the cost of maintenance. The plan of distributing the water varied. On some canals the number of hours *per diem* was fixed, during which Persian wheels were to be worked, or the side channels to remain open. On others, bunds were allowed to be thrown across for a certain time, at fixed points. One great trouble was that the waters of the rivers were apt to recede, leaving large sand banks at the canal mouths, which had to be cut through, or a new head made; then the channels were irregular, without any provision for the escape of surplus water, and the excavated earth was generally heaped up irregularly on the banks, which were never made with any slope, yet on them the safety of the country from inundation often depended. The Afghan rulers, left by Aurungzib, did much to establish this system of irrigation, and Sawin Mull, who was governor from 1821 to 1844, so enriched himself from the plenteous harvests of Multan that he left a private fortune of 900,000*l.*

But the inundation canals were not confined to one district. Taking advantage of natural ravines, some rude canals existed in Gugaira, and other districts of the Bari Doab, above Multan. There was a more complete system in the rich country of Muzaffargarh, between the Chenab and the Indus, the land under the influence of which was one sheet of cultivation. There the proprietary right was vested in zemindars, who were hereditary landowners, while under them were the owners of wells and Persian wheels, called *chukdars** and *sillundars*,† who brought the land under cultivation. These paid a portion of the produce, called *lichh*, to the zemindars, and also a settled rate to the Government. A man was said so own, not so much land, but so many watercourses or Persian wheels. The actual cultivators rent from the owners of wheels or wells, and the canals were kept clear of silt by statute labour.

In the Shahpur district there are two inundation canals, drawing their supply from the Jhilam, which, in 1872–73, watered 4445 acres.

In the Derájat, on the right bank of the Indus, the canals run parallel with the river, and fill during the periods of inundation. There were 12 of these canals, with an aggregate length of 291 miles. The landowners arranged the distribution of water among themselves for the khurreef crops, which are all grown on canal lands.

* From *chuk*, a wooden frame sunk as the foundation of a well. † From *sillum*, bricks.

The native State of Bháwalpur, on the south side of the Satlej, is also dependent on inundation canals, its *khádar* land, bordering the river, being 10 to 12 miles wide. In a former age such inundation canals were conducted from all the five rivers of the Punjab, and traces of them are perceptible, with ruins of cities and villages on their banks.

Our duty has been to maintain and improve these native works, and Lieutenant (afterwards Colonel) Anderson was appointed to superintend them in 1850. For purposes of administration they are divided into the Upper Satlej, the Lower Satlej and Chenab, and the Indus canals.

The Upper Satlej canals are in the central part of the Bari Doab, above the Multan district. Here the face of the country is covered with traces of former life and prosperity; the cause of decay being due to the loss of water supply, for the River Bias once had an independent course to the Chenab, fertilizing the land on either bank; but in 1790 it was diverted into the Satlej, and its old bed became a dry ravine, with a complicated network of deserted watercourses. Colonel Anderson's attention was early given to this waste. Inundation canals have been brought into it from the Satlej. The Khanwah canal leaves that river at a point 20 miles below Ferozpur, by a mouth 90 feet wide, narrowing to 20 feet at the end of its length of 55 miles. A great deal of water used to force its way out of the canal at weak points, and flowed back to the Satlej, inundating the country. The head of the canal also gave much trouble. It was thoroughly cleared out in 1850, and a jetty was built to turn in the water, but in 1852 a waste of sand, a mile wide, intervened between it and the Satlej. A new channel had to be opened, and it has since been much improved. The Khanwah is of the utmost value to the agriculture of the Gugaira district, irrigating 157 villages, and much labour and money have been devoted to its improvement. By 1858 these improvements had been completed, and during the following years several *rájbuhas*, or supply channels, were constructed in connection with it, with masonry outlets, which were paid for by the cultivators.

The Sohag Canal leaves the Satlej a little below the mouth of the Kanwah, to irrigate the country between that canal and the river. It is 73½ miles long, and has been very much improved of late years; the channel straightened and masonry outlets constructed. The Kutora is a nulla to the north of the Kanwah Canal, and Colonel Anderson proposed that the Satlej water should be conveyed to it from opposite Ferozpur, and so into the old bed of the Bias. Another natural ravine, or watercourse, is the Para, which is a continuation of the Sohag. It is connected with the old Bias by a channel called Nawabbin, a name derived from Nawab of Multan, in the last century, who carried the supply of the Para into the Bias, and thence into the Multan district, for the purpose of providing a navigable passage for his wife, who was travelling down country in a boat. The aggregate length of the Upper Satlej Canals is 213 miles. In 1872–73 they irrigated 135,349 acres.

Colonel Anderson's scheme, with reference to the Upper Satlej system of canals, was to establish a control over the river by the construction of a masonry dam at Ferozpur, so as to prevent silting up at the canal heads, and he would have provided one main head for the old Bias, the Khanwah, Sohág, and Para. A great scheme, based on that of Colonel Anderson, for the complete irrigation of the central part of the Bari Doab, by inundation canals, was submitted to the Government of India in January 1872. The area of the country affected by this project is 11,000 square miles, of which 3,230 are on the left bank of the Satlej, and partly in the Bháwalpur, State. The aggregate length of the channels is 1,143 miles on the Bári Doab side, and 80 on the left bank. The estimated outlay is 3,560,786*l.* of which 633,056*l.* is the cost of a dam across the Sátlej at Ferozpur, with headworks, such as was originally proposed by Colonel Anderson.

The Lower Satlej and Chenab Division comprises the canals which fertilise the Multan district. Since the annexation they have been cleared by statute labour every year, the slopes and headworks have been improved, and the distribution carefully supervised. There are now 39 canals, with an aggregate length of 632 miles, of which only 11 miles have been added since the commencement of our rule. They irrigate 242,504 acres, belonging to 410 villages.

The Indus canals include those of Muzaffargarh and the Derájat. There are 66 in the former district, drawing their supplies from the Indus and Chenab, which in 1872-73, irrigated 180,137 acres. The canals have hitherto been kept in repair and cleared by statute labour. The canals of the Derájat aggregate a length of 600 miles, 108 of which have been constructed since the commencement of our rule. The annual clearances are almost entirely effected by free labour. During 1871-72 much

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trouble was given by the high flood of the Indus, and some of the embankments were breached, causing extensive inundation and damage to crops. A scheme is now under consideration for the improvement and extension of the irrigation in the Dera Ghazi Khan district, and another for the irrigation of part of the Sind Ságar Doab, by taking of a supply of water from the Indus where it runs through a rocky channel near Kalábágh. The irrigation from inundation canals, in 1872-73, was larger by 42,582 acres than the highest aggregate yet recorded. The area thus irrigated was 573,522 acres.

Yet another project for the irrigation of the Yusafsai part of the Pesháwar valley received the sanction of Lord Mayo's Government at the instance of Sir Richard Pollock, the Division Commissioner. The Pesháwar valley is encircled by mountains with the exception of a small opening towards the Indus, and comprises 2,400 square miles, divided in two by the River Kabul, which enters the plain at Michni. It is joined midway by the Swat river, flowing from the north-west, and entering the plain at Abazai, and the Bara from the south-west, entering the plain at Shaikhan. The distribution of water from these three rivers is a constant source of feud among the villagers. Four or five villages have a joint right in one irrigation cut, and are together responsible for its maintenance, the cut being supplied by feeders from the rivers. Yusafsai is the portion watered by the Swat river to the north-west. The Swat on entering the plain divides into many channels, winding through rich meadows, fringed with willows and poplars, which all unite again before joining the Kabul. But the supply is often insufficient and irregular, and the remedial scheme is to throw a bund across the Swat at Abazai, in the gorge. A main channel will be led from above the bund, 18 miles long, with 121 miles of distributing channel. The cost of this 'Swat River Scheme' is estimated at 52,700*l.*

But the most instructive system of inundation canals is that within the native State of Bháwalpur, which has been created by the Political Agents, Major Minchin and Captain Grey, and their able engineer, Mr. Barns, during their administration of the country for the young Nawab, who is a minor.

Bháwalpur extends for 300 miles along the left banks of the Satlej, Chenab and Indus. It consists of the *khadar* land along the river banks, averaging a width of 10 miles; the *bangar*, a strip of land running along the whole length of the State, parallel to the *khadar*; and the desert to the south. A large part of the *bangar* is now covered with sand drift from the desert. The desert tract dates its origin from the drying up of the Ghaggar, the ancient Saraswati, which once flowed through the heart of the country from the Sawalikh mountains to the Indus, between Rori and Uch, parallel with the Satlej.

The waste dry channel, traversing the Bháwalpur *bangar*, has ruins of old towns dotted along its banks. It is the old bed of the Ghaggar, (the waters of which now hardly ever reach beyond Bhutner after the heaviest rainfall), and is locally called the *Hakra* and *Sankra*. For the first 80 miles of the Bhawalpur State there is a vast branch of the Hakra, parallel with the River Satlej, called the *Trewanna*, pursuing a tortuous course between the Hakra bed and the Satlej. Once it fertilised a vast tract, but for centuries it has received no water from its parent stream. It had, however, been supplied with water at the rise of the Satlej by numerous excavated channels from the river to elbows of the Trewanna, where, in its windings, it approached nearest. By these means lengths of the Trewanna were just able to keep alive some of the land it once fed plentifully. But, owing to long neglect, the feeding channels and the Trewanna itself silted year by year, and more and more land fell out of cultivation. The people took to rapine for a living, and at last the whole north-east district of Bháwalpur became a mere population of cattle lifters.

This was the state of affairs when Major Minchin, the Political Agent, assumed charge of Bháwalpur in 1867, during the minority of the Nawab. He borrowed 15,000*l.* at 12 per cent. interest for 10 years, and dug a canal called the *Ford-wah*, which issues from the Satlej, and extends parallel to it, and about 20 miles from it, for 105 miles. Irrigation channels are led from the canal, and it does good work, though of course it is unable to replace the vast irrigation of the Trewanna. It was then resolved to restore the Trewanna, as far as possible, by clearance and by leading feeders into it from the Satlej. These works are now in course of construction with the best results. Below the tails of the Trewanna and Ford-wah, in the Khairpur district commence six small canals, which extend to the district of Bháwalpur. Their complete remodelling is a projected work for next winter.

Below Khairpur, which is one of the districts of the Bháwalpur State, and 20 miles north-east of the city of Bháwalpur, there was a large natural dry channel, called the *Vahind*, a feeder of the Sankra. It was proposed to restore water to this channel by feeding it from the Satlej when in flood, and this was partially done in 1871–72 with great success. A new canal, 20 miles long, has also been cut to feed a ruined channel called the *Khanwah*, and the old portion of which has been re-modelled and extended. From the city of Bháwalpur to the junction of the Satlej and Chenab, a distance of 30 miles, there are numerous small native inundation canals, and one large channel, the *Nowrunga*, which has been completely re-modelled, and fed at a high level by a head 20 miles long. The *Kutubwah*, *Sultanwah*, and *Mobarikwah* are perennial canals with their heads below the winter zero of the river, leading to Ahmadpur, the former capital of the State.

The principal canals from the Chenab are the *Minchin-wah*, *Barnswah*, and *Sadikwah*, large channels 100 feet to 200 feet wide, irrigating a vast area by an endless network of branches. Below the junction of the Satlej and Chenab, and parallel to the latter river, there is a great dry channel winding down the remaining length of the Bháwalpur State, called *Hurriari* or "the fertilizer." All the branches from the Chenab system of canals are tailed into the Hurriari, but their volume is inadequate to afford a useful supply to that great channel. In 1871, however, a spill from the Chenab into the Hurriari, at high flood, was carefully utilised, and it is now proposed to make a permanent cut along the line which the spill took, and so give water to the Hurriari. From the Indus there are nine canals, seven of them old native works, and two constructed by the English. The Indus alone, of these rivers, pours its flood over the face of the country in July and August, the waters uniting to run into the eastern Narra, a great channel belonging to the Sind system.

The system of yearly clearances has been placed on a thoroughly sound basis in Bháwalpur. The exact quantity due from each farmer is accurately calculated on correct principles, and he is then made responsible for the clearance along the extent of the canal which rightfully falls to his share. All this useful work has been done within the last four years; and the English Political Agency has thus raised a revenue which they found at 12 lakhs paid in grain, to 19 lakhs (or 190,000*l.*) paid in cash. This is a measure of the blessings conferred upon the country by Major Minchin and his coadjutors.

The important system of inundation canals from the Punjab rivers, upon which the very existence of the inhabitants of a vast area in the rainless region depends, was administered by the people themselves, under Government supervision. The whole of this class of canals within British territory, has now been placed under the regular management of the Irrigation Department. Until recently there was no direct canal income, the returns appearing in land revenue.

The region for state canals presented far greater difficulties. This region, in the Punjab, comprises the Bári Doab between the Bias and Rávi rivers, the Rechna Doab between the Rávi and Chenab, the Chuch Doab between the Chenab and Jhilam and the Sind Sagor Doab between the Jhilam and the Indus.

The Bári Doab was considered the most important, as containing Amritsar, and being the cradle of the Sikh nation; and a great canal was projected for its irrigation immediately after the annexation of the Punjab. One small permanent canal already existed in the Bári Doab. It was called the Husli Canal, and was constructed in about 1633, by order of Shah Jehan, not for irrigation, but to supply fountains at the royal gardens of Lahor. When the Sikhs acquired the sovereignty, they led a branch to Amritsar, to supply the sacred tank. The canal followed the natural line of drainage by a tortuous course of 110 miles, and passed through low land which least required irrigation.

The great English project was to bring a central canal down the high land of the Bári Doab for 247 miles, receiving its water from the Rávi, where that river debouches from the lowest of the Himalayan ranges, at Madhopur. Here there is a deep cutting through the high bank of the Rávi. The canal then crosses two mountain torrents, and gains the table land, striking into its wild wastes, to vivify and regenerate the ruined cities and villages, and rejoin the Rávi, 56 miles above Multan. At the thirtieth mile a branch diverges, to fertilise the most arid part of the Doab, and reaches the ancient city of Kassur (84 miles), and from this branch a smaller channel is diverted eastward to near the Satlej, opposite Sobráon (61 miles). At the fifty-fifth mile another branch is taken off, to spread fertility down to Lahor (74 miles).

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The original plan was that the canal should be navigable throughout, the slope being counteracted near the head by boulder rapids, and afterwards by masonry falls. The total length, including branches, was to have been 466 miles. The main channel, at its head, was to be 120 feet broad, and 5½ feet deep. The total cost was originally estimated at 530,000*l.*, and the work was entrusted to the late Colonel Dyas, with Lieutenant Crofton as his assistant. They commenced work on the first 30 miles in 1850.

In 1856, it was found that the cost of the canal would not be under 1,350,000*l.*; and efforts were concentrated on the completion of the main line, down to where the Lahor branch breaks off. Water was first admitted into the Bári Doab Canal on the 11th of April 1859, and it soon became evident that the declivity of the bed, in the upper parts, was too great, the consequence being extensive channelings out in the sandy tracts, and deep holes below the falls. It was also found that the discharge from the Rávi had been overrated, and that the permanent supply was less than the works were designed to carry. It became evident that to utilise the channels a supply must be drawn from other sources. The minimum supply of water from the Rávi had, in 1848, been calculated by Sir Robert Napier at 2,753 cubic feet per second. It turned out to be only 1,414, and the maximum 2,529. The sources from which the full quantity can be obtained are the River Bias, or the Rávi further down. Estimates for remodelling the canal were ordered to be framed in 1868.

The re-modelling was commenced, and in 1870 it was resolved to complete the Kassur and Sobráon branches, but without navigation. The total cost of the project has risen to 1,344,956*l.*, and when completed with the branches, will be 2,000,000*l.* Important mechanical workshops were established at the head works at Madhopur, and in 1867 the formation of a watercourse was sanctioned, to supply motive power for the machinery. The weir and new masonry headworks at Madhopur were almost completed in 1872–73; and about half the work of the new workshops was finished. The quantity of iron work turned out of these shops was 618 maunds of castings, and 618 of wrought iron.

During 1872–73, the re-modelling of the central line, and the excavation of the branches, made good progress. The aggregate length of the main canal is now 212 miles, with 692 miles of *rajbuhas*, or distributing channels. The gross income for 1872–73 was 81,786*l.*, direct and indirect; and the working expenses 31,570*l.*, the combined direct and indirect profit being 50,216*l.* or 3. 8. per cent. on capital. An important question arose with regard to the rates to be charged for water. Originally these rates were uniform for all crops, being *Rs.* 2. 6. 8. per acre for water given in flow, and *Rs.* 1. 3. 4. for water lifted. After much consideration, it was resolved that the rates should vary for different crops, and be divided into four classes; the scale being for sugar cane, 6 rupees; for rice and gardens, *Rs.* 4. 12.; for wheat, barley, cotton, and indigo, *Rs.* 2. 8.; and for other cereals and pulses, *Rs.* 1. 8. per acre. The number of acres irrigated from the Bári Doab canal, in 1872–73, was 228,796.

Irrigation has not yet been provided for the other Punjab Doabs. In 1862, Mr. Bourne, the managing director of the Oriental Steam Company, proposed a scheme for a joint stock company to construct a canal from the Chenab, and his plan was warmly supported by the Lieutenant-Governor; but, in 1864, the Supreme Government informed Mr. Bourne that they were not prepared to give him any definite encouragement. Colonel Crofton, however, pointed out places whence a permanent supply of water could be obtained from the Chenab. In 1860, Mr. Purdon had a project for a canal down the Sind Ságar Doab, from near Mari on the Indus, to the same river about 70 miles above Mithankot, a distance of 220 miles. The reason for the cessation of necessary investigations with reference to these projects, which were commenced in 1864, is stated to be the difficulty of obtaining qualified engineers for the service. A rough reconnaissance was, however made of the River Chenab last year, near Chiniot, in the Jhang district, with the view of ascertaining the feasibility of drawing off water there, for the irrigation of the lower part of the Rechna Doab. As a ridge of rocks here crosses the river, it is thought that a channel might be taken of at small cost, yielding a perennial supply of water. There are 7,000,000 of acres in the unirrigated Doabs waiting for water, and to swell the revenues of the State; while, in the District of Gúrgaira, lying in an unfortunate position in the Bári Doab, below the point to which the English canal reaches, and barely within reach of the inundation canals, only 66,000 acres are watered out of 500,000. Certainly much remains to be done.

One great work has, however, been recently commenced in connection with Punjab rivers. The Satlej or Sirhind canal project was submitted by Colonel Crofton in 1862. At the point where the water parting separates the Jamna from the Satlej, there is an interval where the classic Saraswati once watered the land of Kuru, on its way to the Indus, but where now the streams have ceased to be perennial, while the desert fast encroaches on the once rich kingdom of Thanesar.

In 1840 Sir William Baker ran a line of levels across this region, from Karnal to Ludhiána, finding the greatest elevation above the Jamna and Satlej to be 68 feet, and he afterwards carefully examined the courses of its river beds. In 1841 the same officer reported that the introduction of a stream from the Satlej into an immense cultivable tract, now desert, was physically practicable. The immediate commencement of this work could not be authorised, but Mr. Thomason, then Lieutenant-Governor of the North-Western Provinces, declared that Captain (now Sir William) Baker had been the successful pioneer in this little known tract, and that he had suggested plans which should not be lost sight of, and which hereafter might mature into works of great national value. Twenty years afterwards Colonels Dyas and Crofton again brought the project to notice. The water parting between the Jamna and the Satlej runs close to the former valley, and no streams between those two rivers derive their waters from the snows of the Himalayas. They are all therefore devoid of a perennial supply, hence the necessity for drawing one from the Satlej. The site for the head works was fixed by Colonel Crofton, on an eastern branch of the Satlej, just below the mouth of the Lohind Torrent, the main stream being diverted into the eastern branch by a bund at Thannah Ghat. There will be great difficulties in taking the canal across the Sursa Torrent, which will be overcome by a dam, with sluices for the passage of floods, and piers sufficiently high to retain the canal supply. The canal, with its branches, will then be taken into a hitherto neglected track, where it will water 783,000 acres, of which more than half are in the native states of Patiala, Jind, and Nabha. The total length of channels was to be 554 miles, of which 100 was for navigation only, and the project included a navigable communication, 205 miles long, from the Satlej at Ferozpur to the Western Jamna Canal above Karnal. The estimates were completed and submitted for the orders of Government in February 1872, the total cost being calculated at 2,980,427*l.*, of which sum 1,062,216*l.* were to be paid by the three native states whose territory will be irrigated from the Canal, the British Government having agreed to divide the available water supply of the Satlej rateably among the irrigable lands within reach of the canal, irrespective of the states within which they were situated, a proportional share of the cost being borne by each state. About one-third of the excavation of the main line, along the first division (first 11 miles), was completed by the end of 1872-73, the quantity executed during the year being 44,500,000 cubic feet; 4,500,000 by prison labour. Accommodation for 2,000 convicts has been provided at Rupar. In the second division (26½ miles) 161 millions of cubic feet were excavated.

After the rivers of the Punjab unite at Mithankot the Indus flows for 450 miles to the sea, through the arid rainless country of Sind. Here irrigation is absolutely essential to cultivation. What the monsoons are to other parts of India, the inundation of the Indus, and the canals which distribute its waters, are to Sind. This country is an alluvial plain, almost every portion of which has been swept by the Indus or its branches, at some time or other. Traces of ancient channels are to be met with in almost every direction. The land is highest at the river banks, and slopes away from them on either side. The reason of this is that the river brings down a greater quantity of silt than its stream, moderated in velocity on the nearly level plain, can carry forward. The silt is deposited, and the result is that the bed and banks of the Indus are continually rising. The process is sure, but very slow. Dr. Lord calculated that the Indus annually brings down silt sufficient to form an island 42 miles long by 27, and 40 feet high. When the bed attains a certain height the water falls over, and the river, at intervals of several centuries, changes its course. It has slowly worked its way from east to west. In 710 A.D. the invading Muslims found a Hindu dynasty at Alor, and the ruin of Alor was caused by the Indus moving to the west. Then the seat of Government was moved to the City of Brahmanabad, the ruins of which are now 45 miles from the river.

It is this movement which causes one of the difficulties in Sind irrigation. The river is continually carrying away the banks in one direction, and forming new land in another. This process never ceases; and the falling masses of earth make a noise in the distance, resembling volleys of musketry. From Sakhar to the sea the

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distance is 300 miles, and the banks are permanent only at three places, Sakhar, Jhirk, and Kotri. At Sakhar the river rushes through a narrow gorge in the limestone hills, forming a perfect rapid during the inundation, with a descent of above four feet. At Jhirk the river is not contracted, but there is rock on either side. At Kotri hills approach on both sides, and the clay soil is deep and tenacious. The rise of the Indus commences in May, and subsides at the end of August.

The canals are excavations carried away from the river in an oblique direction, so as to secure as great a fall as possible. They vary from 10 to 100 feet in width, and from 4 to 10 feet in depth. None, in former times, had their heads at the three places where the river bed is permanent, and none are deep enough to draw off water from the river, except during inundations. They resemble natural watercourses more than canals. From the position of the canal heads they are liable to two evils: either the river encroaches and tears away the banks, or it recedes and forms a great sandbank across the head.

The canals cut through the high margin of the river banks, and conduct the water to lower levels, down an inclined plane, where, under favourable circumstances, it flows out on the surface. Thus the cultivation may be divided into three classes: first, the land which can only be irrigated by using Persian wheels to raise the water; secondly, land irrigated by machinery when the canal is low, but over which the water will flow naturally when the canal rises; thirdly, land watered altogether without the aid of machinery. Some of the largest canals were at first natural channels, others were dug by various rulers of Sind. They are rude and simple expedients which attain their object, though less perfectly and at greater cost than if they had been constructed on sound principles. The care of the canal consists in clearing out the silt deposited by the inundations, or washed away from the sides. This was done by statute or forced labour.

Captain (now Sir William) Baker was appointed to the superintendence of canals and forests in Sind, in 1843, and he surveyed the canals and made several valuable reports, especially on the Eastern Nara Canal, on the left bank of the Indus.

In 1844 he made over charge to Captain (now General) Walter Scott, who was the first engineer to take charge of the canal clearances; but in 1849 the Canal Department was abolished, and the Collectors were left without assistance; the records were locked up, and much previous labour was wasted. The canals deteriorated, becoming less wide and less deep. Canal mismanagement culminated in 1853. In 1851 Captain Blois Turner reported on their condition, and in 1856 a separate officer was appointed as Superintendent of Canals. Since that time Colonel Fife has been the most prominent irrigation officer. In 1860 the Canal Department in Sind was again abolished, and in 1870 it was once more reorganised under Colonel Merriman.

Sind Canals may be divided into three classes: first, those of great extent and importance, running 70 or 80 miles; second, those of smaller extent, and branches; third, the distribution channels.

On the western bank, commencing from the north of Sind, near Sakhar, the chief canals are the Sind, Ghar or Lárkhána, Bigari, and Western Nara. All but the Bigari are probably, judging from their tortuous courses, natural channels kept open artificially.

The Sind canal opens from the main stream of the Indus, on the right bank, 21 miles below Sakhar. Its total length is 66½ miles, and at its tail it divides into three branches, the Mutti, Kadu, and Mihshuda, the former connecting the Sind with the Larkhana canal. The course of the Sind is very tortuous, and the fall deficient.

The Ghar or Lárkhána leaves the Indus 23 miles below Sakhar, and has three heads or channels of supply. It is very tortuous, and the fall is thus much reduced. Several smaller canal branch from it, until it divides into two branches, the Núr-wah and Nowrung, and loses its name. The Nowrung again divides into two, the Andra-wah and Muldussi, and these are again divided into several smaller channels.

The Western Nara leaves the Indus 27 miles below Sakhar, and at 40 miles from the head it is 200 to 300 feet wide. This canal is less winding than the Ghar, and the fall is consequently greater. The country is well cultivated on either side of it, and the villages are numerous. It returns to the Indus at Sehwan.

The improvement of these canals, especially of the Ghar, was commenced in 1856 under Captain Ford. A channel of supply was cut from the Western Nara to the Ghar called the Ford-wah, which augmented its supply and raised its level. The

head of the Ghar was also improved. The Ford-wah is considered to be one of the most successful works in Sind. It raised the level of the Ghar three feet, and increased its volume enormously, thus converting a large area from wheel to natural flow irrigation. The lower part of the Western Nara was of course somewhat injured, but not in proportion to the gain of the area dependent on the Ghar.

The Bigari canal, also on the right bank of the Indus, is the most interesting in Sind.

In 1844 it was described by Lieutenant Maclagan as having a total length of 48 miles, with a fall of 35 feet. The head was on a side channel, at a distance of nearly seven miles from the Indus. For the first 23 miles it passed through a country covered with jungle, but presenting frequent traces of former cultivation. It then entered a district where much water was taken by means of Persian wheels, and towards the end of the 48th mile it became a mere ditch. In 1851, General Jacob, Political Superintendent of the Upper Sind Frontier, represented to the Commissioner (Sir Bartle Frere), the great advantage of enlarging the Bigari. It was then becoming yearly smaller, from the defective system of clearing. At the head it was 24 feet wide, with a depth of nine feet. It was proposed to enlarge to 40 feet, with a depth of 11, and to slope the banks to a proper gradient. The Núrwah was the chief offshoot of the Bigari, and had been carried far into the desert north of Khangarh. General Jacob, in 1852, proposed that the Núrwah should also be cleared and enlarged. He entrusted the work to a native contractor, who had to remove enormous heaps of earth, 25 to 30 feet high on the banks, to cut away jungle, and to clear dams out of the bed. The contractor did his work well, though only a common Sindhi Maistri, and completed it in 1854. The capacity of the Bigari was about doubled by the new excavations, and much wheel irrigation was converted into natural flow with a saving, each season, of 130 rupees for every wheel. Villages sprung up along the Núrwah, where a few years before people scarcely ventured to take their flocks, from fear of Balúch plunderers. Jacobabad was founded in the midst of a barren treeless waste. The water of the Bigari canal was brought to Jacobabad, and the tail was extended thence to the Kelat boundary near Khyra Garhi. Now the former desert is a dense forest of babúl and other trees, upwards of 60 feet high, sheltering the houses and gardens of the inhabitants. Within a few miles there is the desert again which skirts the Baluchistan hills, a level plain of splendid, fertile, alluvial soil, but hard, naked, and barren like a threshing floor, without shrub, herb, or grass, except in the vicinity of canals. There the desert is converted into a garden, woods took the place of sand, and the Bigari canal revenue, which amounted to 4,796*l.* in 1852, was 13,594*l.* in 1857, and 17,339*l.* in 1862. The improvements of General Jacob only cost 6,200*l.* In 1860 it was resolved to increase the width of the first 40 miles; and in 1867-68 this important canal was again enlarged and improved.

On the eastern side of the Indus, between that river and the desert, there is an ancient channel the Eastern Nara, which had ceased to flow as part of the Indus since that river, deserting the passage through the rocks at Alor, took to its present channel between Rohri and Sakhar. The Eastern Nara had no direct communication with the Indus, when Sir William Baker came to Sind in 1842, but received a precarious supply of water from a remarkable depression which runs parallel with the Indus from above Bháwalpur, and, being lower than its flood height, receives some water from canals, and a more considerable volume by direct overflow. The channel of the Eastern Nara being also lower than that of the Indus, can easily be filled from the great river on a higher level, and Sir William Baker pointed out the rock at Rohri as offering a site for the head works. Hitherto the overflow of the Indus, in floods, had formed the Nara supply. In 1826 Sir A. Burnes mentions that the Nara, which in its lower course is called the Púraun, was filled by a flood which cut through the Allah-bund, and reached Lakapat. 1843 Sir W. Baker saw marks of a flood that rose 18 feet, and in 1843 there were only four feet in the same place. The Nara passes through the wild Thur, a country covered with enormous sandhills, with occasional tracts of alluvial soil between them, along a channel on which are formed a series of bottoms locally called *dunds*. There are 400 of these *dunds*, or lakes, supplied from the Nara. The people in the Nara valley gain a livelihood by rearing cattle, feeding flocks, fishing in the *dunds*, and carrying on a grain trade with states beyond the Thur. They eagerly raise crops whenever the Nara supplies water.

The cut from the Indus at Rohri to the Nara is 11 miles long, and the Nara is 20 feet below the river. Sir Bartle Frere strongly recommended its being made, and

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work was commenced in 1853, together with bunds across the channel at intervals, to lead off the water for irrigation. In 1854 the cut was in full progress, beginning just above Rohri; 16 feet deep, 206 feet wide, with a berm 15 feet wide on each side, and the excavated earth distributed in two terraces on either bank, forming admirable garden ground. The Rohri cut or supply channel was completed and opened on 9th May, 1859. Bunds were also constructed across the Nara channel to prevent the escape of water into the large *dunds* among the sandhills.

Two canals branching from the Eastern Nara have also been constructed. The Mitrow Canal was commenced in March 1859. It was to be filled by a branch from the Nara, and in 1866 there were 190 miles open, which irrigated 156,803 acres.

The Thar Canal is another branch from the Nara, intended to water lands at the edge of the dessert. It was commenced in 1864, and is now completed, irrigating about 38,000 acres; 50 masonry heads for minor channels were constructed during 1871-72.

The Fullali Canal is the main feeder of irrigation channels from Haidarabad southward and eastward. Originally it was a natural branch of the Indus, joining it again 16 miles below Haidarabad. This was prevented by a dam, in the time of the Amirs, and the water was sent to feed the Gaja, Gúni, and other canals to the south. The chief portion thus fell into the Gúni, after a course of 40 miles, the average width being 350 feet. The improvement of the Fullali was commenced in 1856. Two channels of supply were cut from the Indus, and the effect on the water supply was very satisfactory. One of the most interesting services on which Sir William Baker was employed in Sind, was a survey and levels along the Gúni to its junction with the Púraun (the continuation of the Eastern Nara), and thence to the Allahbund, which he surveyed and levelled. The Amirs of Sind, after an unsuccessful invasion of Kach, cut off the supply from the Fullali and Gúni, which had fertilised one of its provinces. After our occupation of Sind, the Government of Kach requested Sir Charles Napier to cut the bunds and let the water flow again. Sir Charles sent Baker to do this, who took the precaution to take levels first, and found that, owing to certain depressions and elevations caused by subsequent earthquakes, the cutting of the bunds would not restore the water to Kach, but, on the contrary, would let salt water flow back into Sind.

The great administrative question with reference to the Sind canals has always been the system by which they were annually cleared of silt, an operation which is absolutely necessary. The old custom was for the Government to pay for the clearance of the large canals, and for the people to keep up the minor channels. In 1864 the cost of clearances was 41,041*l.* As in the case of the Punjab inundation canals, the Sind canal clearances were effected by *cher*, or statute labour. Every cultivator was forced to furnish a quota of labourers in proportion to the extent of his cultivation. The silt is sometimes removed in baskets, and sometimes by a board drawn by oxen, like a gigantic hoe, trailed along the ground. But usually the only implement is a hoe, with a long blade and short handle. The labourer fills the blade by striking it into the soft soil, and by a jerk throws a shovelful upwards and behind. One man stands behind another and the soil is thus passed on. The canal digging lasts from December to April. But in 1856 statute labour was abolished, and the annual work of clearances became very expensive, while insufficient funds were allowed for it. The canals are deteriorating, solely owing to the sum annually allotted being less than is adequate for the purpose.

There is a special tax, called *hakaba*, of three annas per biga, levied from lands watered by canals cleared by Government, to aid the cost of clearance. Sir William Merewether has represented that the *hakaba* is credited to revenue, and that only a portion, arbitrarily fixed without regard to real requirements, is allotted to canal clearances. He has remonstrated against this, and has represented that the canals will each year deteriorate, in proportion to deficient clearance. The sum required is five lakhs, while only three and three-quarters are granted; yet the *hakaba* amounted to 47,708*l.*, every farthing of which, he urges, ought to have been expended on the object for which it was intended. Sir William Merewether thinks that the *hakaba* should be made an entirely separate fund, for canal clearances. This question was taken into consideration, and the Government of India declared that the *hakaba*, being part of the land revenue, could not be dealt with separately; but that whatever sum was needed for canal clearance should certainly be given. In consequence of the canals not being properly cleared, the condition of the people of Sind is worse and less prosperous now than it was before the country came under British rule.

In the Karáchi Collectorate there are 309 canals, of which 128 are properly cleared, 65 insufficiently cleared, and 116 not cleared at all.

Since 1855 Colonel Fife has advocated the construction of perennial canals in Sind, issuing from permanent heads. Sites for such heads can be found at only three points on the Indus, at Sakhar, at Jhirk, 250 miles lower down, and at Kotri. He considers these to be the proper points for canal heads. From Rori he would take one down Eastern Sind, crossing 150 canals to the Fullali, which would become the trunk line for 80 miles. From Sakhar, opposite to Rori, another would be led down the western side, parallel with the river, crossing the Sind and Ghar, and entering the Western Nara to rejoin the Indus at Sihwán. The present canals would be used as distributing channels. From Jharrak two more canals would be taken, one on each side, towards the sea. This scheme would revolutionize the ancient system of Sind irrigation, its advantage being that such canals are permanent, and their supply perennial.

One perennial canal has been undertaken, from the rocky banks of the Indus above Sakhar to Sháhdadpur, a distance of 63 miles. The line crosses the old Sind canal, where there is a regulating bridge of seven arches, each 10 feet span, and the water is regulated by horizontal sleepers. The scheme for this canal was approved in the end of 1861, and commenced; and in 1868 the work had reached the 24th mile. It is the first attempt at a perennial canal in Sind, and is to irrigate 140,000 bigas of land, yielding a revenue of 209,999*l*. It was opened in June 1870.

General Strachey, in 1867, recorded an opinion that the remedy for inconveniences caused to cultivators by uncertain water supply, never under control, was the substitution of perennial for intermittent inundation canals. The area under canal cultivation in Sind is about 1,200,000 acres, and the land-tax and water charge about *Rs.* 2. 4. per acre. He thinks, if all the water was supplied by flow and none by Persian wheels, this charge might be raised to *Rs.* 3. 4., and that the cultivated area would be doubled. He thus concurs in the views of Colonel Fyfe, and would take two perennial canals from the Indus at Sakhar and Rohri to Sihwán on the west, and the Fulalli on the east side, crossing all the present canals, and using them as distributing channels.

The basin of the Ganges is nowhere within the rainless zone; but nearly the whole of the course of the Jamna is in the dry region, with a rainfall less than 30 inches, while that of the Ganges flows through a country which receives very little more rain, until the two rivers unite at Allahabad. But here begins the great distinction between the Ganges and the Indus. While the Indus, in its lower course, receives no affluents, and passes into an arid belt which is absolutely dependent upon its waters for every blade of grass, the Ganges is joined by numerous tributaries, and passes into the well-watered plains of Bengal; the rainfall being 46 inches at Benares, and 66 at Calcutta. It is the portion of the Ganges basin above Allahabad, therefore, that most requires irrigation. Colonel Greathed divides this upper region, which comprises the North West Provinces, into three zones. First, the tract along the foot of the Himalayas, which is well watered by rainfall and by numerous rivulets from the mountains, most of which dry up after the rainy season. But along the length of this sub-Himalayan tract there is a deposit of sand and boulders forming a continuous belt 15 miles wide, which creates a vast filter-bed, and, being bordered on the down-hill side by a band of clay, it becomes a covered reservoir. The natural pressure augmented by the rapid slope, across which the filter-bed lies, forces water under the clay, and produces a line of springs on the other side of the clay band, which feed numerous streams, and refresh the country. The local name of the belt of boulder is *bahbur*, and of the tract which it waters by filtration, *terai*. The second zone comprises the great plain through which flow the Ganges and Jamna; and the third is the province of Bandalkhand, sloping northwards from the high plateau of Central India towards the Jamna.

The climate of the North West Provinces is very dry, and from April to June, when westerly winds prevail, the vegetation of unirrigated plants is almost suspended. In June the winds bring the rain-clouds up the valley of the Ganges from the Bay of Bengal, and the season of agriculture commences; but the rainfall diminishes as the distance from the sea increases.

From the earliest times the people have practised well-irrigation, the depth at which the water is found on the plains being from 10 to 50 feet; but the method is expensive, for it employs six men and three pair of bullocks every day to keep five acres watered. Colonel Baird Smith, in 1860, reported that there were 70,000 masonry and 280,000 temporary wells in the Doab between the Jamna and Ganges,

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irrigating 1,470,000 acres. But it is from the water of rivers that the main supply must be drawn by means of State canals, which are far beyond the means of private enterprise in India; and hence the water which, if raised to the proper level, would have fertilized the whole land, has for centuries rolled useless to the sea. Yet the native rulers did not wholly neglect this great source of supply. The Emperor Firuz Shah, between 1351 and 1388, drew a canal from the Jamna to water his favourite hunting ground at Hissár; but there are no marks of irrigation works along the line of his canal, which fell into disuse on his death. For a hundred years no water had flowed to Hissár, when, in 1568, the Emperor Akbar issued a decree, ordering the canal of Firuz to be restored. It is singular that the Ayin Akbari makes no mention of this work of Akbar, and we are indebted to Colonel Yule for our knowledge of the original *sanad*, which places the fact beyond doubt.* In 1626, the Emperor Shah Jehan projected a branch from the canal of Firuz, to convey water to the city of Delhi, and Ali Murdan Khan was his engineer. The Delhi canal crossed the low land by a masonry aqueduct, traversed the Arávali hills by a channel cut through the solid rock, 60 feet deep at the crest, and flowed through the city in a masonry bed, throwing off innumerable minor streams. Throughout the great halls and courts of the palace a plentiful supply was carried in numerous channels, filling the graceful fountains and marble baths, and watering the gardens. For 150 years it continued to be efficient, but in 1753 this Delhi branch ceased to flow. Ali Murdan also made a canal in the Doab, but it was abandoned almost as soon as it was made, probably owing to the difficulty of maintaining a passage across the mountain torrents at the head.

Thus, when the English came into possession of the country, all these works of former rulers had fallen into ruin. "We found the country desolate, the cities "burnt, when the sons of strangers came to build up the walls, and the rulers to "minister."

The North West Provinces comprise a region which seems designed by Nature as a great field for artificial irrigation. The rivers, after leaving the last gorge of the Himalayas, enter upon plains with a rapidly-decreasing slope; and, flowing parallel to each other, they divide the country into sections, which, both as regards soil and declivity of surface, offer every requisite for irrigation. The steep slopes at the mouths of the mountain gorges in many cases enable the engineer, by a proper adaptation of levels in his artificial channels, to obtain a command of water which places the whole country under his command. The chief difficulties under such conditions are in the neighbourhood of the steep slopes, and in the management of the mountain torrents. Occasionally, however, it becomes necessary to adopt other expedients for bringing the water from the river beds to the level of the land to be irrigated, and very heavy excavations are frequently necessary, besides weirs and other works, to regulate the distribution and velocity of the water.

The first undertaking of the English was the restoration of the Firuz and Delhi canals, which was commenced in 1823; and the Western Jamna Canal system was fully developed by Colonel Colvin and Captain (now Sir William) Baker, between that date and 1843. The supply is derived from the Jamna, at the point of its debouche from the Sawálákh hills, where the stream is rapid, the fall great, and the bed consists of shingle and boulders. In the cold weather the stream is generally confined to one or two only of the numerous channels into which the bed is subdivided, which are all filled by the high floods of the rainy season. One of these branches was appropriated to the Western Jamna, which leaves the river at a point called *Hathni Kund* (the Elephant's pool), nearly opposite the old palace of Badshah Muhal, returning to the main stream after a course of 25 miles. The supply is increased by deepening the channel, and throwing out a spur into the main stream, which was extended right across in seasons of drought. Additional supplies are thrown into this western branch by two feeders, one called "Colvin's Cut," the other natural. The materials used for the dams were boulder stones and gravel, filled into large gabions of coarse basket work. The canal, continuing along the *khádar*, or low land, near the river, first follows a branch of the Jamna; then a channel excavated to the Putralla river, and then occupies the bed of the Putralla to its confluence with the Somb. Here was the main difficulty, in restraining and regulating these torrents, and forcing them to allow the fertilising flood to pass on its way in peace. The Dadupur dam was built across the united Somb and Putralla, here occupied by the canal, just above their junction with the

* J. A. S. B., No. 171, March, 1846.

Jamna. Originally it was carried across this channel by an earthen dam annually renewed; but in 1830 Colonel Colvin obtained sanction for the masonry Dadupur dam, providing a flush flow across the bed of the Somb, divided into 60 openings, the total width being 777 feet. The dam is closed by planks hooped with iron, with an eye for an iron hook, by which they are lifted. The Putralla made an attempt to turn the east flank of the dam, which was frustrated by a series of spurs placed *en echelon*, in 1842. Then the Jamna itself commenced an attack upon the left bank, which was defeated by means of a new channel, and a series of crib spurs *en echelon*. But the Somb still threatened destruction to the works. Lieutenant Durand surveyed the country drained by it, and made a beautiful map of the Somb and Putralla drainage, in the hope of mitigating the force of the Somb floods, by turning a portion into one of the Satlej tributaries. But this was found to be impracticable. Then a new channel, called "Baker's Cut," was excavated, to check the encroachments of the Somb. After a prolonged battle between Colvin, Baker, and Durand, on one side, and the Jamna, the Somb, and the Putralla on the other, the victory was finally secured by the skill and perseverance of the engineers. The turbulent enemies were made captive, and the precious stream was safely convoyed past the dangers which are common to all the canals when they first leave the head-works, and have to encounter the lawless mountain floods and torrents.

The canal is then taken through an excavated channel parallel to the Jamna, into an old nulla near Burea, and thence partly down natural ravines, to Karnal, 60 miles below Dadupur, still in the *khádar* or low lands of the Jamna. At Karnal it gains the level of the high country, and soon afterwards separates into two branches, one passing on to Hansi and the other to Delhi. The Delhi branch has a very winding course, the size gradually diminishing, as water is taken off by the numerous irrigation outlets. It enters the *khádar* land of the Jamna, through which it is embanked, crosses the valley of the Najafgarh drainage by a massive aqueduct, traverses the rocky hills round Delhi by a deep irregular excavation in the solid rock, and enters the city near the Kabul gate. One branch flows in a masonry channel down the Chandni Choke; others water the gardens and supply the houses, and finally pass, through four sets of water mills, to the Jamna.

The Hansi branch follows the line of Firuz Shah's engineer, and the pastoral villages of Hissar are entirely dependent on it for the means of watering their cattle. At Hissar a travelled courtier of Firuz Shah erected a building to give his master an idea of a ship ("*juhaz*"). It is now used as a store house for the canal, for which purpose its ample "hold" renders it very suitable. The Rohtak branch is taken off from that of Hansi, and there is another short branch, that of Butana, to irrigate villages near the Jhind boundary, which was excavated in 1835.

The united length of the main lines of the Western Jamna Canal is 445 miles, and in the famine of 1837–38 the value of the crops saved by its water was 1,462,800*l*., supporting the inhabitants of 500 villages, who would otherwise have died of starvation. In 1866–67 the water-rate on irrigation yielded 70,000*l*., and the area irrigated was 447,171 acres (797 villages), the aggregate length of watercourses being 728 miles. The canal has also had the effect of raising the level of the water in the wells. The total outlay up to 1872–73 was 311,693*l*., and the net receipts for that year 92,500*l*., being, including both direct and indirect returns, 31 per cent. on the outlay. The total area irrigated in 1872–73 was 351,820 acres.

The system of water distribution on the Western Jamna Canal was complicated by old rights. On the Delhi and Rohtak branches there were many distributing watercourses, the proprietary right to which was well understood by the people. As regarded new channels, it was made compulsory on all villages bordering on the canal to permit excavations for such watercourses as were approved by the superintendent. The *rajbuhas* are joint stock channels, executed by the canal officers, for the use of two or more villages. The original cost was formerly defrayed by the Government, and ultimately recovered from the villages. But this system has been abandoned, and all the main watercourses are now constructed at the cost of the Government. The distribution of water in the branches has to be regulated with reference to the probable demand. Fixed gauges are established at certain points, and the height of the water is regularly reported.

It was found difficult to estimate the value of a given outlet, but a system prevailed until 1833 of letting out these outlets on contract, the rates being fixed at 2 rupees per annum per square inch of area for natural flow irrigation, and 1 rupee for wheel irrigation. But the discharge of the outlets varied with reference to the inconstant height of the canal. It was, therefore, determined to assess the outlets

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on the average of their irrigation for three or more years, the period of contracts being fixed at 20 years. The other system is to measure the irrigated land. It has been argued that the contract system has several advantages over that under which the irrigated lands are measured. Under it the villages are free from minute interference of canal officers; they are supplied first in times of scarcity; they can irrigate all crops at the same rate; while the advantages to Government are a steadier revenue and a smaller measuring establishment. There are, however, sufficient reasons for commencing with a system of measurement, as the basis of the assessment of the canal rates, though under certain conditions the contract system may be usefully adopted. Certain villages near the canal heads contribute labour in exchange for a supply of water for irrigation and for working *girats*, or rude corn mills.

Colonel Colvin's scale for water rates on the measured land was sanctioned in 1827, and again in 1845 (Act VII.) These rates discriminate the nature of crops and the method of employing water, whether *tor* or *daul*, that is, natural flow, or artificial raising by Persian wheels or otherwise. But from 1st November, 1866, the rates were considerably increased. The rate, for each acre per annum, is 5 rupees for garden lands irrigated by natural flow; 3 rupees for sugar-cane and indigo crops requiring water for 10 months; *Rs.* 2. 4. for rice, cotton, and wheat crops; and *Rs.* 1. 10. 8. for the khurif crops of grain, barley, bájri and jawári. When the irrigation is from water artificially raised, the rate is about a third less.

Of late years the necessity for dealing with the Western Jamna Canal has been much felt, with a view to remove the swamps which had formed along its banks and in the country which it irrigates; to remedy the evils caused by *reh* efflorescence, which destroys all vegetation; to increase the volume of its waters; and to improve its navigable character. During 1871 Colonel Crofton matured a scheme which was partly sanctioned by the Secretary of State, the works so approved being the new permanent head across the Jamna, distributaries from Indri to Delhi and Jhind, and drainage works. The estimate amounts to 214,267*l.* The permanent dam across the Jamna is a most important work, as it is intended to supply both the Western and Eastern Jamna Canals, and to secure a due apportionment between the two systems. Large quantities of material have been collected for this work. The construction of reservoirs for the storage of a supply of water for the cold weather cultivation in the arid tracts of Sarsa, is also under consideration.

There is a system of irrigation from *jhils* or large lakes which is in some degree connected with the Western Jamna system. The range of hills round Delhi is of inconsiderable height, and has few streams. The watercourses in the country to the east and west are dependent on the drainage of the country for occasional floods. The land is disposed into a series of natural hollows, each lower than the one next to it, and all connected by channels; a chain of natural reservoirs is thus formed, the largest of which is the Najafghar jhil, which receives the drainage of slopes from Delhi to Bádsháhpur. The villagers keep their cotton crops on the high ground while their sugar cane and wheat fringes the whole jhil; but the land, both on this and other jhils was subject to be submerged, and the supply of water required regulation. Of late years the whole area of the Kotila jhil has been drained, and 4,500 acres brought under cultivation during the cold weather; embankments have been formed, and the drainage of the whole system passes under the great aqueduct of the Delhi Branch Canal into the Jamna. The area irrigated, by what are called the Delhi and Gurgan works, is 11,087 acres.

The Eastern Jamna Canal was originally projected by Shah Jehan between 1628 and 1659, and had been partially restored in 1764 by a Rohilla chief named Zabitha Khan. In 1823 Captain Robert Smith reported upon its restoration, the scheme being to carry it centrically along the high land between the Hindaun and the Jamna, and excavation was commenced at the close of 1823. In 1825 the late Sir Proby Cautley joined the canal establishment as assistant to Captain Smith. The canal was opened on 3rd January, 1830, by Sir Proby Cautley, and the water reached the Jamna again, after traversing its whole length, on the 14th. Rapids formed in the sandy sections, which were remedied by falls of masonry. In 1836 the bunds of the Western and Eastern Canals were placed across the Jamna, and the river was laid entirely dry. The Nayashahr dam, for the Eastern Canal, was formed on the Budhi Jamna with 30 sluices and a regulating bridge in the canal. The dam was built of ancient bricks brought from the old palace of Badshah Muhul. The Eastern Jamna Canal passes, from the main river, down the shingly bed of the Budhi Jamna for four miles to Nayashahr. From this point it enters upon the difficulties peculiar to these lines, which have to cross mountain drainage at right angles to their courses.

The Raipúr, the Jatonwala, Naugong, and Muskurra mountain torrents of greater or less dimensions, are passed within a distance of ten miles from the deep cutting at Nayashahr. These torrents are provided with masonry dams for floods during rains. The canal then continues on the high land of the country. Large plantations of sál, sissú, and other trees were formed at Nayashahr for planting the banks of the canal. The *rájbuha*, or distributing arrangement, was for the landholders to subscribe for watercourses to be dug from the canal by the superintendent, the expense being charged to the applicant, except that of the masonry outlets in the canal, of which there are 592. The water rates for the Eastern Jamna and Ganges Canals are the same: for natural flow; *Rs.* 5 for sugar-cane *Rs.* 3. for tobacco, rice, and gardens; *Rs.* 2. 4. for indigo, cotton, and rubbi crops; and *Rs.* 1. for khuríf crops. For lift irrigation the charge is *Rs.* 3. 5. 4., *Rs.* 2., *Rs.* 1. 8., and *Rs.* 1. for the above four classes.

The embankments to retain the canal in its bed are 40 miles long, and the canal flows between them at a height of from six to 12 feet above the surface of the country. The canal system consists of 130 miles of channel and 625 of distributaries, watering a tract about 120 miles long by 15 broad, between the Hindaun and the Jamna. The net revenue in 1872-73 was 30,774*l.*, giving a return of 16·6 per cent. on the outlay. The area irrigated was 184,154 acres. A portion of the Eastern Jamna Canal was remodelled in 1854; and, in the part where it crosses from the Saháranpur into the Muzafarnagar districts, the new line crossed the Shamli-nulla, an affluent of the Hindun, in several places; and three cuts were made for the escape of water, which have affected the Katha, a tributary of the Jamna, in whose valley large swamps have formed. In 1872 Captain Harrison was deputed to report upon a remedy for these evils, which very injuriously affect the land, and the health of its inhabitants. The scheme is to carry off the water, which lies like an incubus on a wide tract of country.

The Ganges Canal, a purely British work occupying a field previously untouched, is the greatest work of irrigation ever constructed. In 1836 Sir Proby Cautley examined the country, and in 1848 the work was commenced.

The head of the canal is two and a half miles north of the town of Hardwar, close to the foot of the Sawálákh mountains, where a well-trodden footpath once led down a ravine to the water's edge in a branch of the Ganges. At the head of this ravine, and overhanging the river was a large peepul tree, and at its foot a lingam. The spot was called Gunes Ghat. Here a bridge was constructed with 10 openings across the mouth of the canal with shutters, and a line of revetments connect the bridge with a dam across the branch of the Ganges. The Gunes Ghat was converted into an extended line of stone steps, washed by a running (among the many) stream, offering conveniences for pilgrim bathers.

After leaving the Ganges, the canal had to encounter the difficulties of the mountain torrents, analogous to those which were overcome by the engineers of the Jamna canals. There are three methods of meeting and passing these torrents. They can be made to flow across the canal channel on the same level, or taken over it by a super-passage, or the canal can cross the torrent on an aqueduct. All three ways were adopted by Sir Proby Cautley on the Ganges Canal. At Dhanairi, about 14 miles from the head works, where the canal is still in the khádar land, the Rutmú torrent is encountered. Here a masonry inlet and a dam was constructed. The flood waters enter the canal channel through the sluices of the inlet, and are discharged through 47 sluices in the dam. They bring down branches, roots, whole trees, and masses of grass, and no obstruction, except the piers of the dam, is offered to their passage across the canal channel. Further on, the flood waters of the Ránipur and Puttri torrents are conveyed over the canal channel, without coming in contact with the canal water, by means of well protected and parapeted masonry super-passages. The next great work on the canal is the aqueduct, which takes it over the Solani river, which is 18 miles from the head works.

The Solani aqueduct is 920 feet long, in 15 arches of 50 feet span each, connected on either side with an earthen embankment, raised nearly 30 feet above the valley of the Solani, which it traverses for a length of about three miles. The canal continues along the centre of the country between the Ganges and Jamna, throwing off branches at intervals, all adapted for internal navigation as well as for irrigation. The main line is 181 miles long, divided at Nanún, in the Allygurh district, into two branches, each 170 miles long, that on the right falling into the Jamna in the Etáwah district, and that on the left into the Ganges at Cawnpur. There are also two smaller branches, 83 and 10 miles long respectively. The whole length of main canal and branches is therefore 614 miles; and the length of distributaries is 3,111

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miles. In 1872-73 they irrigated 685,170 acres. There has been a rapid and steady spread of indigo cultivation on the Ganges Canal, and the area of sugar cane crops has also increased. But, until water mills are supplied for crushing the cane, the sugar cane area must be limited by the bullock power available for working the native sugar mills. Irrigation commences 22 miles below the head works and is diffused over an area 320 miles long by about 50 broad. The Ganges Canal was opened by Lord Dalhousie on the 8th of April, 1854.

Experience has shown that, in the original design, too great a slope was given to the bed of the Ganges Canal, and considerable erosion in the bed has been the result. In 1863 Colonel Crofton was appointed to report in detail on the whole question, and his conclusions have been generally adopted by the Government. The main point to decide was whether the existing canal should be modified, so as to be able to carry with safety the whole volume of water for which it had been originally designed, or whether a second channel should be made to carry that part of the supply which the canal in its existing state could not carry with safety. The remodelling of the canal was shown to be the most economical alternative, and it was adopted. In August 1864 an outlay was sanctioned for the protection of the falls that were most injured, and the precautions taken were so successful that the full supply has been maintained in the canal, for a considerable period, without any appearance of renewed injury. Meanwhile projects are in preparation for the re-arrangement of the Cawnpúr, Fathigarh, and Etáwah branches of the canal, and the remodelling of the first was sanctioned in 1868. The net profits of the Ganges Canal for 1872-73, were 70,764*l.*, or 2·74 per cent. on the capital sunk; and the navigation returns were 3,237*l.*

The Agra Canal is a project, now approaching completion, for watering the thirsty lands of Delhi, Gurgáon, Mattra, and Agra from the Jamna. A weir, 2,428 feet long, has been built across the Jamna, below Delhi, at a point where a spur of quartz from the Arávali range abuts upon the river. It consists of two parallel masonry walls, 26 feet apart, resting on the fine sand of the river bed, with stone packed between them, with slopes and scouring sluices. The Agra Canal is designed to irrigate 350,000 acres, and will probably be partly opened this year. It was to be partly opened in March 1874.

There is also a project for completing the system of the Ganges Canal, by the construction of a Lower Ganges Canal, with a capacity equal to that of the present Upper Canal, on an estimate of 1,825,000*l.* The scheme has been sanctioned by the Secretary of State, and work was commenced in 1872-73. This, with the Upper Ganges and Eastern Jamna Canals, will complete the irrigation of the whole country between the two rivers. The weir across the Ganges, for the Lower Canal, is to be at Rajghat.

An Eastern Ganges Canal is to be constructed, taken off at the foot of the boulder formation at Sámpur. The tract of country which is to benefit by it, lies between the Ganges and Rámganga rivers, forming Western Rohilkhand, and comprising the districts of Bijnáur, Murádabad, and Budáon. The canal, after passing through several miles of cutting, will come to the surface at the 21st mile, and then will command the whole of the irrigable area of the country. Five hill torrents will be encountered, of which two will be diverted from the canal, the two next will be passed over, and the fifth under it. The country, especially Bijnaur, is well adapted for the cultivation of rice; and the whole irrigable area between the rivers is 3,132 square miles in extent. The scope of the project has not been finally determined.

The Rohilkhand Canals are for irrigating the belt of country along the *terai* where much rice is raised. On the failure of rain, water can only be obtained by damming up the hill streams, and leading small canals over the country, on which the *rubbee* crop depends. The system now consists of a number of ancient, badly designed lines, which are maintained only until a better system has been constructed. For the year 1872-73 they caused a loss of 2,398*l.* In 1824, there were 1,930 dams, and 915 canals. All the country between the Rámganga, which passes by Murádabad, and the frontier of Oudh, is intersected by numerous hill streams whence canals could easily be led. The Nagínah Canal was taken from the right bank of the Koh, and opened in 1840, and there are Murádabad Canals. Two others, the Paba and Kailas, have recently been sanctioned, and are in course of construction, and a project is to be prepared for utilising the waters of the Rámganga. But, with regard to a general and comprehensive scheme for Rohilkhand irrigation, the present orders of the Government are only of a character to elicit further and more complete information. The area at present irrigated by these canals is 52,244 acres.

There is a compact little system of irrigation in the Dehra Dun, between the

Ganges and Jamna, and confined on the north by the Himalayas, and on the south by the Sawálákhs. The valley is 48 miles long, and in the centre it is considerably elevated, the ridge extending from the Himalayas to the Sawálakhs, and dividing the valley into two portions with two distinct slopes of drainage to the east and west. The Asnu and Súswa rivers rise on this central ridge, the former going to the Jamna, and the latter to the Ganges. All the elements of a good system of drainage are here naturally provided. On the Asnu side there is a torrent called the Tonse, across which a dam is thrown, and watercourses are carried in various directions from the other streams, to irrigate the valley. There are five canals, aggregating 67 miles in length, and irrigating 11,523 acres. The net profits for 1872-73 were 2,434*l.*

In the Arávali hills, there are no such rivers as water the Dehra Dun. Isolated and surrounded by the parched-up plains and deserts of Northern India, the cultivation on these hills mainly depends on water stored in tanks, and some of the landholders preserve the thorny scrub on the hill sides, in order to regulate the filling of the tanks from rain. The district of Mairwára, in the Arávali, was brought into subjection by Colonel Hall, in 1820; and his successor, Colonel Dixon, in 1835, constructed tanks and reservoirs on a large scale. Between 1836 and 1846, as many as 2,065 tanks and 9,915 wells were constructed in Mairwára. The tanks have a total area of 8,675 acres, and irrigate 14,826 acres of land. The once wild and unruly Mairs became a thrifty, peaceful, and industrious peasantry, under the influence of these improvements, and of such men as Hall and Dixon.

For Bandalkhand large schemes of irrigation have been devised. The rainfall is carried off with great rapidity, owing to the granite and trap formations, leaving the river beds almost dry soon after the rain ceases. One proposal is to build a weir across the river Betwa, which flows near Jhansi, to retain the water, and a canal will then irrigate 120,000 acres in the Jálaun and Humirpur districts, Other weirs are projected across the rivers Desán and Ken, with granite weirs and canals; while 15 lakes, now irrigating 1,300 acres, will be made to water 22,000. These measures will secure Bandalkhand and Jhansi against famine, and restore this region to its pristine fertility. There is every prospect of these anticipations being fully realised. A survey has also been prepared for a canal to be derived from the river Sardah, to irrigate the western part of Oudh and eastern Rohilkhand; but in deference to the expressed wish of the landholders, the construction of this work has been abandoned.

Such has been, and still are, the efforts to supply irrigation in the upper part of the basin of the Ganges. They cannot be considered insignificant, seeing that there is nothing that in any way approaches them in magnitude and importance in any other part of the world. The area irrigated by the canals of the North West Provinces in 1872–73 was 940,586 acres, yielding a canal revenue of 231,264*l.* This is an increase on the previous year, owing to there having been 5½ inches less rainfall. The average water rate per acre irrigated was *Rs.* 2. 25. The total capital invested in canals in the North West Provinces is now 3,311,384*l.*; of which 2,928,649*l.* is in works in operation and yielding revenue. The gross receipts are 231,264*l.* and the working expenses 129,826*l.*; leaving a profit of 3·46 per cent. on the capital sunk on works in operation. There is also an indirect income from the enhancement of land revenue resulting from the operations of the canals, calculated at 55,406*l.*; which raises the percentage of profit to 5·3.

As the Ganges approaches the sea, the rainfall increases, and the general need for irrigation becomes less and less; but the variation of rainfall in different districts is considerable, and the local conditions of climate are such, that a great scheme for utilising the waters of the Son, the chief southern tributary of the Ganges, for the irrigation of part of the province of Bahar, has long been under consideration, and its execution has now been commenced. It was originally undertaken by the East India Irrigation Company, on a plan proposed by Colonel Dickens, and their project was accepted by the Government in 1867, on the understanding that the agreement must end if the company did not make satisfactory progress with the works. An application of the company for a guarantee of interest on their capital was rejected; they never commenced work, and at length they were induced to agree to an arrangement by which they were bought off. The Government then took up the Son project with energy. It consists of a dam across the river, and two main canals led off from it, which will supply irrigation for 2,000,000 acres in the districts of Patna, Gaya, and Sháhabad. The estimated cost is 3,775,000*l.*

The works at present in progress are the weir across the Son at Dehri, and the head works of the two main canals, also a portion of the main canals on each side of

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the river, and the Arrah and Patna Canal. The weir will be two and a half miles long between the abutments, and eight feet high. In 1870–71 the well blocks of masonry which form the foundation of the upper or breast wall were sunk right across the river. In 1871–72 those for the second wall were also sunk, and good progress was made with the head and under sluices, and with the head locks; bu. the operations were hampered by the unusually large volume of water in the rivers The stone is brought from quarries at a distance of seven miles, on the left bank of the Son, 200 waggons and four locomotives being employed to convey it. The western main canal was nearly completed, to the dimensions already sanctioned, for a length of 22 miles, by the end of March 1873; and the bridges and siphons were in progress. The eastern main canal is nearly completed for 8 miles. On the Arran Canal, which is to be 70 miles long, and to irrigate 430,000 acres, ground had been broken over 60 miles, and six locks, two bridges, and seven siphons are in progress. The Patna Canal is to connect the Son with the Ganges at Patna. It is to be 84 miles long, and to irrigate 390,000 acres. About 67 per cent. of the earthwork has been executed during the year 1872–73. On the whole, the progress of the Son works, during the last three years, has been most satisfactory.

The Midnapur Canal, part of which was open and in use in 1871–72, supplies a country which is within the zone of 60 inches of rainfall. This canal is 52 miles long; 23 of which, comprising the lower section, connect the Rivers Kusi, Rúpnarain, Dámodar and Hugli. It is now practically complete in regard to its main channels, and connects the town of Midnapur with tide water in the Hugli, 16 miles below Calcutta. The distributaries and drainage channels are, however, still incomplete; but the canal is now capable of affording irrigation to about 72,000 acres. The scheme comprises the irrigation and drainage of 200,000 acres, as well as a navigable canal from Calcutta to Midnapur. The estimated cost is 931,300*l*. But smaller branches to villages are much needed. They could not be made by the people, or at least the people would not make them, so it was determined, as an experimental measure, that Government should do so for the first 50,000 acres in the upper reach of the canal. The people did not care for the channels, grudged the land, and viewed their construction as a grievance. Irrigation is not popular in Midnapur, a proof that the rainfall is abundant.

This completes a review of the chief irrigation works in the valley of the Ganges; and the Orissa canals and embankments, in the delta of the Mahánadi, next claim attention, as they, with the Son and Midnapur works, are under the jurisdiction of the Lieutenant Governor of Bengal.

The Mahánadi river drains the fertile plain of Chatisgarh, in the Central Provinces, and falls into the Bay of Bengal. It is 529 miles long, and its basin covers an area of 45,000 square miles. But the Mahánadi basin is extraordinarily compact. It has a mean diameter of 225 miles, excluding the neck, so that but a very moderately wide spreading rain storm will ensure rain falling on every square inch of the area simultaneously. The form of the basin is that of a round and compact body, with a narrow neck and bell-shaped mouth, like a water decanter, than which it is difficult to conceive one more calculated to empty itself rapidly, while the position is one of very close proximity to the sea, the source of rain clouds. Thus the Mahánadi is pre-eminently fitted to produce what are actually met with, namely, floods ranging extremely high, but of brief duration. The Province of Orissa, at the deltas of the Mahánadi and Bráhmani, has long suffered from these periodically devastating floods, and the maintenance of its embankments has always been of the first consequence to the inhabitants.

The East India Irrigation Company undertook the execution of the necessary works for the irrigation of Orissa, and the protection of the country from floods with an unguaranteed capital. Their offer was accepted by the Government; Colonel Rundall, an eminent Madras engineer, was allowed to act for them as chief engineer for five years, and they commenced work in 1862. One of the most serious evils suffered by Orissa at that time arose from its isolation. The one little harbour at False Point was scarcely ever visited, there was no proper survey of the coast, and the road to Calcutta was barely passable during six months in the year. The leading principles to be observed in projecting the works were means to prevent the recurrence of drought, protection of the harvests from being destroyed by floods, and the opening of communications.

The region in question extends along the coast from the Chilka lake to the Sálandi river, and is traversed by the deltas of four rivers, the Mahánadi, Bráhmani, Baitarni, and Sálandi, which, in time of floods, may be looked upon as one vast delta; while

immediately above the point where these rivers begin to overflow their banks, the country begins to slope up steeply to the hills. The limits of the area within which the works should be confined are thus clearly marked out. This area is perfectly flat, and the staple crop is rice, grown during the monsoon months. The amount of rainfall averages 57 inches; but as the whole dependence is on the monsoon crops, it is not the quantity of rain, but the time of its fall that is all important. If the rains cease early, a famine is inevitable. In 1865 the rains ceased on September 14th, and the crops consequently perished. The main object of the works must be to secure the principal crop of the district from all risk of failure from drought.

Immediately upon issuing from the hills, the Mahánad bifurcates, one arm retaining the name of Mahánadi, and the other taking that of Katjuri. The Beropa branches off from the Mahánadi opposite Cattack, and after 35 miles joins the Bráhmani, whoseestuary is called the Dhamrah. The head works were planned to consist of three weirs across the Mahánadi, Katjuri, and Biropa, 6,400, 3,900, and 1,980 feet long respectively; the two first 12½, and the third 9 feet high. The canal for the country between the Mahánadi and Katjuri, called the Central Delta, is taken off from the right flank of the Mahánadi dam, and a junction canal is to connect it with the Katjuri. Two canals are led off from the Biropa dam, that on the left bank being the high level canal to connect Cattack with Calcutta, and that on the right being intended to irrigate the country between the Mahánadi and Bráhmani. Embankments are built round the city of Cattack to protect it from floods.

The Kendrapara Canal takes off from the right flank of the dam across the Biropa, to irrigate 270,000 acres of what is called the Northern Delta, at the rate of one cubic yard per hour per acre; it is 160 feet wide, and seven deep. The distributaries measure in all 171 miles, irrigating 85,000 acres, and there is a branch called the Pattamundi, taking off from the fourth mile and passing down the right bank of the Beropa and Bráhmani to Pattamundi, the port on the Dhamrah, a place of export for grain. This branch irrigates 113,000 acres. The Taldundah Canal takes off from the right flank of the Mahánadi dam and runs to Taldundah, the limit to tidal navigation, to which the steamer brings goods and passengers from the anchorage; it has a branch called the Machgong, and the two are to irrigate 155,000 acres of the Central Delta. They can now irrigate 30,000; being in use for about one third of their length, of 52 miles in the former, and 53 in the latter. The high level canal is designed as a line of navigation from Cuttack to Calcutta, while its power as an irrigating canal is limited. The first portion from Cuttack to the river Bráhmani is open, 32 miles in length; and the greater part of the distributaries are completed for an area of 80,000 acres. The works are now being vigorously pushed on from the Bráhmani to the Salandi, so as to be ready for use in 1876. The whole cost of the Orissa works was estimated at 1,120,963*l.*; but the total sum has since been placed at 2,598,200*l.* to irrigate 1,600,000 acres. Of this 1,389,500*l.* have been spent up to March, 1873.

The Company was unable to carry on the works, and they were handed over to the Government in 1868, together with the Son project, for the sum of 1,050,000*l.*, since which time the gradual prosecution of the Orissa scheme to completion has been sanctioned. The three great weirs had already been constructed by the Company, and have since been maintained in perfect order and security. But there is a want of appreciation of the value of irrigation on the part of the cultivators of Orissa; the available supply is even now out of proportion to the demand, and there is a disposition only to resort to irrigation when the rain fails. The Company asked for a rate of five rupees per acre, which was refused by the cultivators; the Company then lowered the rate, but the ryots still refused the water. It was again lowered, and is now one rupee per acre. Only 14,740 acres are irrigated in Orissa, and there is great difficulty in collecting the water rate. The assessments were disputed at every step, and howling mobs followed the canal officials, representing their grievances. There is indeed a story that the ryots were charged for water rates when banks burst and the inundation damaged their crops. Demand after demand had to be abandoned, and finally the net income in Orissa on account of irrigation for 1871-72 was only 1,772*l.*, out of an original demand for 12,982*l.* The Ooryas are slow and conservative, but at the same time shrewd and suspicious, and the Lieutenant Governor considers that they must not be harassed by charges, and that the water rate must be settled for a period of years, five at least. This has been done, the water being supplied, on written application, at the rate of one rupee per acre, which rate is not to be altered for five years.

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On the other side of the hills which bound the basin of the Mahánadi are the fountains of the Narbada and of tributaries of the Godávari. The Narbada and Tapti flow across India, confined on either side by ranges of mountains; the Vindhyan range, with its steep cliffs bounding the Narbada valley on the north; the Sátpura range separating the Narbada and Tapti, and the Deccan plateau confining the Tapti and its affluent the Purna to the south. These streams flow through the richest cotton districts of India to the Gulf of Cambay; in a country the rainfall of which is from 30 to 50 inches. The area of the Narbada basin is 36,400, and of the Tapti 27,000 square miles. Irrigation is necessarily on a small scale in these comparatively confined valleys. The district of Nemar, in the Narbada valley, was acquired from the Peishwa in 1818. The lake of Lachma, a tank three miles round, which was found in ruins, was restored, and 105 other tanks were put into working order within two years. In 1845 and 1846 Captain French, then in charge of Nemar, made a masonry dam across the ravine of Chuli, opening on the Narbada, and another large earthen dam across the Chapri, thus forming the great Chuli and Mandleswar tanks. The reservoirs and system of irrigation may be roughly described as being on the Madras system. The portion of Nemar north of the Narbada has now been made over to Holkar, together with Mandleswar, formerly the head-quarter station, which is now transferred to Kandwah, where the Holkar State Railway branches to Indor.

In their lower courses the Narbada and Tapti flow through the cotton-growing districts of Gujrát and Khandesh, where much attention has been given to well irrigation, and to improved methods of raising water from the rivers, as well as to works on a large scale. A project for the irrigation of 194,632 acres from the river Tapti, in Gujrát, has been sanctioned, and several works are either under construction or projected in Khandesh. A dam for the storage of water in the Girna valley has been commenced. The Jamda canals have been opened, and water was admitted in June 1869. The Mukti reservoir is under construction near Dhulia, the main dam being complete, and an outlet tunnel excavated to an extent of 80 feet. The Hurtola tank is nearly completed.

As regards rainfall, latitude, and jurisdiction, the country drained by the head waters of the Warda and Wainganga, tributaries of the Godávari, in the Central Provinces, may be classed with the Narbada region. No great works have been completed in this region, but surveys have been made for the Kanhan irrigation project at Nágpur, which consists of a great storage reservoir, covering an area of 41 square miles, of a main canal 142 miles long, and minor canals with an aggregate of 400 miles.

The main features of the Madras system of irrigation are the dams or *anicuts* over rivers flowing across the peninsula from the Western Ghâts, just above their deltas, and the innumerable tanks. The river deltas, which have been the scenes of these excellent and highly remunerative labours, are those of the Godávari, the Krishna, the Ponnar, and the Kaveri, besides some smaller works. The rainfall along this western shore of the Bay of Bengal is moderate, and insufficient for the satisfactory production of rice, the crop which is most abundantly cultivated. At Vizagapatam it is 45 inches, at Madras 50, but further south only 30 and 22.

Commencing from the north, the projects for the Godávari works were sanctioned in 1844. At the head of the delta, at Dhauleswaram, the deep bed of the river is 22 feet above high water mark, and the highest part of the delta requiring irrigation is 30 feet above the same level. From Dhauleswaram the river flows to the sea, on the crest of what may be termed a great natural embankment, 6 to 24 feet above the level of the country. The bed of the river, therefore, only required to be raised 10 or 12 feet to give a perfect command and establish a working and efficient head of water. This is effected by a dam or *anicut*, 12 feet high, at Dhauleswaram, where the river is three-and-a-half miles wide, 1,000 yards of which is occupied by four islands. The *anicut* is a substantial well-protected mass of stone, in lime cement, 130 feet broad at the base, 12 feet high, and two-and-a-half miles long. The delta, from the Kolair Lake to Samalkota, is a noble expanse of rich alluvial land, with an irrigable area of 2,000 square miles; and the Godávari can supply 3,000 cubic feet of water during the low, and 12,000 during the high period of the river's volume. The larger quantity may be depended on from July to October, when the rice-crop requires a constant supply of water (40 acres of rice to one cubic foot per second of water). The delta is divided into three natural sections, the first between Samalkota and the Eastern Godávari, the second between the two branches of the river, and the third from the Western Godávari to the Kolair Lake. In the first section there is a

channel along the river, and another, separating into two branches, to Samalkota and Cocanada. These and all the other main lines of canal are adapted for navigation, as well as for the supply of water for irrigation. The second section consists of 352,000 acres of a rich alluvial soil of surpassing fertility. A main channel passes down the left bank of the river, and, at the eighth mile, branches into two. The right-hand branch is again sub-divided, six miles further on, and one line crosses a minor branch of the Godávari, by the Gunnarum brick acqueduct constructed by Lieutenant Haig, 2,248 feet long, on 49 arches. The third section has a main channel carried out for eight miles, when it breaks off into several branches, having a united length of 220 miles. Altogether there are 840 miles of main channels to irrigate 780,000 acres. In 1864 an extension of the Godávari line, completing the water communication between the Godávari and Krishna works, was sanctioned, and since that improvements have been executed from loan funds. The traffic on the canals of the Godávari is of much importance to the district, and in 1872–73 was carried on by 51,957 boats and rafts.

The Krishna enters the low country at a distance of about 80 miles from its mouth; and both its banks, below Bezoarah, spread out into rich alluvial plains. The site of the anicut at Bezoarah is flanked by the last hills; thence the plain stretches uninterruptedly to the sea, and to the Godávari. The two rivers have formed the alluvial plains of the deltas; but half way between them is the Kolair Lake, a low swampy tract representing the work the Krishna and Godávari have to do before this alluvial plain is complete. The English acquired the Krishna delta in 1766, and for 80 years they did nothing, while famines periodically desolated the land. When the rains failed in 1833 not less than 200,000 people died of hunger, and the Government lost revenue to the amount of 900,000*l*. The Krishna delta covers an area of 10,000 square miles, with 1,100,000 inhabitants. The river flows to the sea on an elevated central ridge, with the country falling off gently to right and left, and a general inclination to the sea. Bezoarah is exactly at the apex of the delta, where the river is 1,300 yards wide, flowing between two hills. The anicut consists of a broad basis of stone thrown into the river, and allowed to assume its own natural shape, 3,750 feet long, and 305 broad; faced with a casing of masonry, with scouring sluices at the flanks. From the east side the main channel is divided into two branches, one to Masulipatam and the other to Ellor. The main western channel divides into the Nizapatam and Comamur branches. In 1866 estimates were submitted for widening the channels, so as to ensure a supply for 250,000 acres, making a total of 430,000. This work of enlarging, which is designed to develop and perfect the system of irrigation and navigation in the Krishna delta, was progressing in 1872–73 by means of loan funds.

The construction of the Ponnár *anicut* was first proposed in 1849, at the ferry at Nellor, where the river is 520 yards in width; it was completed in 1855, but in 1857, during a hurricane, the *anicut* was breached for 282 feet, and the repairs were not completed until 1861. The area irrigated by the water thus obtained was 32,874 acres in 1863. The supply from the Ponnár is precarious, so that it is obliged to be supplemented by water kept in reserve in the Nellor and other tanks; and the water is only given out on one side of the river, the levels on the northern bank being too high. There is now a project to enlarge the main or Survapali channel from the Ponnár anicut, and so develop the irrigation.

The Kaveri and Kalerun works are the most ancient, both as regards the native original portion and the English improvements. At the head of the island of Seringham, near Trichinapalli, the main river divides into two branches, the southern retaining the name of Kaveri, and the northern being called the Kalerun; which latter has a larger volume, a more rapid slope, and a more direct channel, and the tendency was for the smaller stream gradually to silt up, and the whole volume to pour into the Kalerun. This would have ruined the irrigation of Tanjor. The ancient native work, called the grand anicut, was a solid mass of rough stone 1,080 feet long, and 40 broad, stretching across the bed of the Kaveri in a serpentine form at the lower extremity of Seringham Island. It was built upwards of 1,600 years ago.

Colonel (now Sir Arthur) Cotton's plans for the development of the Kaveri irrigation were sanctioned in 1836. Before the construction of his works the area of irrigation dependent on the Kaveri and Kalerun was 669,000 acres. The great object of Sir Arthur Cotton's plans was to send the excess of water in the Kalerun back into the Kaveri; by throwing a masonry anicut across the Kalerun, the crown of which should ensure about half the supply of that branch passing into the Kaveri. The Kalerun anicut is 750 yards long, divided into three parts by two

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islands. The brick and stone mass rests on three lines of wells, six feet in diameter, sunk to a depth of six feet in the sandy bed of the river, and there are 22 sluices. The effect of this work was to deepen the bed of the Kaveri, and a masonry regulating dam was carried across that river in 1845. This has given regularity of current and decrease of violence in the Kaveri, and has also caused a clearing of the Kalerun; the two streams are thus controlled in a most satisfactory manner. The Kalerun is the great drainage channel of the delta, while the Kaveri branch is a channel of irrigation only. All the numerous channels are solidly embanked, and an anicut was thrown across the Kalerun in 1836, 70 miles below Seringham, to regulate the supply for South Arcot. In 1836 the area irrigated from the Kaveri and Kalerun, in Trichinapalli, Tanjor, and South Arcot, was 630,613 acres. In 1850 it was 716,524 acres. The returns on the outlay may be estimated at 23½ per cent.

It is difficult to give the exact effect on cultivation of the great Madras delta works, because the irrigated areas are given by districts, not according to separate works, and may be due in part to supplies from tanks not receiving water from the delta works. But the areas of irrigation in the Godávari, Krishna, Nellor, and Tanjor districts, no doubt represent, very nearly, the areas irrigated by the Godávari, Krishna, Ponnár, and Kalerun delta works. This was in 1872–73—

Godávari district - - -	264,717 acres.
Krishna district - - -	169,897 „
Nelor district - - - -	169,073 „
Tanjor district - - - -	748,673 „
	1,352,360

This is probably below the truth, as the Kalerun works also irrigate tracts in Trichinapalli and South Arcot. The total area of irrigated land in the Madras Presidency amounts to 3,124,480 acres.

South of the Kaveri lies the district of Madura, which depends for its supply of water, other than the direct rainfall, from the river Vaiga, rising in the hills of Travancor. The streams which form it have their sources in the slopes immediately overhanging the eastern valleys, so that their volume is very little affected by the south-western monsoon, and the Vaiga, as it flows by Madura into Ramnad, is never able to meet the wants of those districts, while none of its water reaches the sea. Both in 1864 and 1865 the channel was dry 24 miles below the town of Madura. Ramnad looks in vain for water to irrigate its fields, while the supply is quite inadequate to meet the wants of Madura. Yet, while a scanty and insufficient supply reaches the thirsty eastern plains, the great river Periaur, with a volume far beyond the possible wants of the western coasts, runs to waste in the Cochin backwaters. By a cutting 140 feet deep, and a quarter of a mile long, and a dam 60 feet high, it is believed that the river Periaur might be turned over from the well-watered western to the parched-up eastern coast. This would change the whole face of the country, and a garden would soon extend from the mountains to the sea. The plans and estimates are not yet matured, but in another year we may hope to hear more of this interesting Periaur project.

Tinnevelli, the southernmost district of Madras, is watered from the Tambrapurni river, by means of anicuts placed at intervals across the stream, whence channels are led either directly for irrigation, or to supply tanks, the number of which in this district is exceedingly large, giving some index to the demand for irrigation. The anicuts are earth embankments, with masonry sluices; they are very ancient native works, the largest being the Kanadien channel, running parallel with the river from Popanassum to Shermadevi, the land between the river and the channel being one sheet of paddy. As some portion of the water of the Tambrapurni still escaped to the sea, the construction of the new anicut, below all the others, was sanctioned, so as to secure this surplus for irrigation, and to supply the port of Tutikorin with water; these works are now well advanced.

There remains the second zone of dry country, with a rainfall under 30 inches, extending down the centre of the peninsula to leeward of the western ghauts. It comprises the eastern half of the Bombay Presidency, great part of the Nizam's territory, the Ceded Districts of Madras, Mysore, and a great part of the Carnatic; it is watered by the upper courses of those rivers, the Godávari, Krishna, Ponnár, and Kaveri, the deltas of which have been so admirably fertilised by Sir Arthur Cotton and his great school of Madras engineers; it is emphatically the region of tanks.

The Nizam's territory, Mysore, and the Carnatic are covered with thousands of

tanks. In the fourteen districts of Madras there are said to be 43,000, all of native origin, with probably 30,000 miles of embankments, and 300,000 separate masonry works. The revenue dependent on tanks was 1,500,000*l.*, yet, in 1853, not one new one had been made in Madras by the English, though many had been allowed to fall into disrepair. In Mysore, until quite lately, the arrangements for their maintenance were also far from satisfactory. Tanks are formed in various ways, according to the accidents of the ground. Embankments are thrown across the gorges of valleys, high enough to retain a volume of water proportioned to the irrigable acres situated below. Descending terraces of land are occupied by a succession of reservoirs, the higher feeding the lower from its surplus supply. Long slopes have portions embanked on three sides, and the included space forms a storage area for such volume of water as local wants may call for; some of these works are very ancient. The Viranum tank has an area of 35 square miles, and an embankment 12 miles long, still in full operation after an existence of fabulous duration; it secures an annual revenue of 11,450*l.* The Chembrumbaukum tank, in Chengalpat, looks like a picturesque natural lake. The embankment is over three miles long, and the tank maintains a sheet of rice cultivation, nearly 10,000 acres in extent. Its safety, during floods, is secured by six waste weirs (*calingulas*) with a total width of 676 feet of escape channel; the supply is from rainfall, and merely local drainage. The enlargement of this fine tank was sanctioned in 1867, at a cost of 41,000*l.*, and the excavation and earthwork is completed. The Kaveri-pauk tank, in North Arcot, is also of great antiquity. It is fed from the Pallair river, and has an embankment nearly four miles long, riveted along its entire length with stone; it irrigates nearly 7,700 acres. In 1872 the water rose higher than had been known for many years, and several considerable slips in the bund took place, due to its saturation by the infiltration of tank water. Remedial measures have been adopted. The most formidable cause of injury to tanks is the action of waves on the embankments during gales; it is counteracted by long slopes on the water face of the bank, and protecting coverings of rough stones. Most tanks are supplied with an outlet, called a *calingula*, generally of masonry, built in the land near one end. It is so much lower than the land itself that any superabundant water can pass over it. Towards the end of the rainy season, the *calingula* is closed, so as to keep the tank quite full. This is done by means of straw and turf, the crown of the *calingula* being usually supplied with a row of rough granite posts, three or four feet high, to support the wall of turf built up in front.

In Mysore there was much activity with reference to the repair of tanks during 1872–73. By the Tank Restoration Scheme the Irrigation Department selects specific series of tanks for immediate work, brings them up to a certain standard of repair, and then leaves them to be kept in repair by the ryots, under the revenue officers. In this way all the tanks in the province are gradually being dealt with. Owing to the undulating nature of the surface of Mysore there are very few large tanks, and, except in the neighbourhood of the Kaveri and its tributaries, the country depends for its irrigation on numerous chains of small tanks, in which a process of silting up is always going on, and which require constant inspection and repair. During 1872–73 as many as 249 tanks were breached. The chief new irrigation work in Mysore is the Sriramadevara anicut over the Hemáváti, which was completed in 1870–71. The supply of water is ample, and it will secure extensive rice crops.

The three rivers in Bhima, Krishna, and Tungabudra, rising in the western ghauts, drain the greater part of the southern dry region, and unite to form what is usually called the Kistna, a short distance below the town of Karnal. On first issuing from the mountains, they and their tributaries traverse the thirsty lands comprised in the eastern section of the Bombay Presidency, the Deccan, and the Southern Mahratha country. Considerable activity has been shown, of late years, in suggesting and maturing projects for utilising the water of the rivers as they flow across the Bombay territory. But the difficulties are not trifling. The rivers have so slight a slope that their fall would not gain much on that of a canal, while the steep transverse slopes of the valleys prevent canals from getting to any distance from their parent streams. The rivers are filled at the time of rains, but during the long dry season of eight months they become mere threads. The two objects to achieve are the retention of the copious supplies which run to waste during the rains, and the command of the barren lands on the sides of the valleys. The natives in this region left the main rivers untouched for storage purposes, for the most part, and were contented with the construction of small tanks on tributary streams.

The largest of the works in the Bombay Presidency that is completed is the

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Krishna (the name of the upper part of the Kistna river) canal. A masonry dam is thrown completely across the river, on a rocky bed. A canal is excavated from above the dam, which is near Kurvar, in the Satara district. Its bed is four feet lower than the crest of the dam, and it is provided with scouring and regulating sluices. It then meanders along parallel to the river, with a slope of a foot a mile, being carried across the drainage of the country by suitable works, and eventually recedes from the bank, so as to command a larger area of land. It is now in working order, and has insured the safety of valuable crops over a considerable area.

The Ekruk tank is four miles north of the town of Sholápur, on the Adéla, a tributary of the river Bhima. The dam of earthwork, with masonry flanks, is thrown across the Adéla valley, and is 7,200 feet long, and 72 feet high in the centre, with a waste weir at the east end. A lake is thus formed, with an area of six and a-half square miles, which submerged five villages, two of them in the Nizam's territory, causing an annual loss of revenue amounting to 100*l*. On the other hand 35,840 acres are brought under the influence of the tank by three channels, two of them on a high level, to be used when the tank is full, for monsoon crops, which are 4 and 18 miles long respectively; the other a permanent channel, 28 miles long, for perennial irrigation. One of the high-level canals is now complete, and the permanent canal has been carried to the twenty-fourth mile. The dam was completed in 1869, and the Ekruk tank is now in working order. The water was given free of charge in 1871–72, it being the first year.

The Púna and Kirki water-supply works, also within the basin of the Bhima, consist of a masonry dam of great height, and 2,900 feet long, across the valley of the Muta river, to form a reservoir. Two open ducts lead the water to Púna and Kirki, where it will be distributed by iron pipes. This work was designed by Colonel Fife, and is now progressing rapidly. The centre portion of the dam has been raised for a length of 250 feet, to a uniform level of 53 feet above the river bed; most of the masonry work is complete, and the Púna canal is well advanced. The Mudduk tank, with canals, in Dharwar, is a scheme which has been carried out, as well as that of the Kalhola nullah; and several others are engaging the attention of the Bombay Government. Such are the proposals for a canal from the Gokak river in Belgaum, for a canal from the Mulpurba river into the Dharwar plains, and for carrying out the Churdi project, which was suggested by Sir George Wingate many years ago. The valley of the Yerla, a tributary of the Krishna, has also been surveyed for storage tanks, and the new canal from the Yerla is now in working order, as well as the Chikli canal, both in Sátára.

There remain the Ceded Districts of Balari, Karnúl, and Cuddapa, in the midst of the dry zone, with a rainfall at Balari of only 22 inches. The Tungabudra flows round the northern borders of Balari and Karnúl, and offers the food-giving water to those who know how to get it. But the country beyond the mere valley of the river has thirsted for lack of sufficient water during long centuries. Often the monsoon rains fail, and then people die of hunger by scores. Yet on the banks of the Tungabudra, and within the Balari district, stood the famous city of Bijayanagor, where the old travellers Conti and Cæsar Frederick saw cool channels flowing through the streets, and groves and gardens concealing the suburbs. The Rajahs of Bijayanagor constructed dams across the Tungabudra in 1521, and in subsequent years, by throwing enormous stones on the rocky ridges in the river bed, and leading off canals. Nine such anicuts were built, and channels with a total length of 89 miles were led into the valley, to increase its fertility, and water the crops. But they were never brought to the country above, which really requires water; and this problem remained for us to solve.

The arid plains of the Ceded Districts continued to thirst for water. At last it was resolved that an English company should have an opportunity of trying whether the employment of private enterprise and English capital could be advantageously adopted in aid of Governmental action, in the construction of works of irrigation in India; and these Ceded Districts were selected as the scene of the experiment. In 1860 the agreement was made with the Madras Irrigation Canal Company; but one important element, the enterprise, was omitted, for the Company's capital of 1,000,000*l*. was raised by means of a Government guarantee to pay interest at 5 per cent.

The final project, which was sanctioned in 1861, is to divert, by means of an anicut at Ṣankasala, 17 miles above Karnúl, a portion of the flood waters of the Tungabudra into the valley of the Ponnár, through a capacious canal along the right bank of the former river, and across high land, forming its watershed to the east; also to complete a line of water communication to the coast, by improving the beds

of the Kundar and Ponnár to fit them for navigation; and by excavating canals, overcoming the slopes of the country by a succession of locks, and providing water for the dry season by constructing reservoirs. The irrigation of the Balari district was also a part of the original plan.

At Sankasala a reef of rocks forms a barrier in the river, and furnishes a base on which to erect an anicut. Its height is 12 feet, and the length 1,500 yards. From its right flank, the main canal is carried parallel to the river for 17 miles, with only one bank from 16 to 34 feet high, the other being formed by the natural rise of the ground. Thus a quantity of land is submerged, while the single bank is subject to violent action from waves, owing to the extensive spread of water. Close to Karnúl, the canal is taken across the Hindri river on a fine aqueduct. At Metacondal, 72 miles from Sankasala, there is a cutting, a mile long, which takes the canal from the Tungabudra basin, across the water parting, into that of the Ponnár, descending the valley of the Kolair, to the Ponnár itself, by a succession of locks, in a fall of 236 feet. From June to November there is plenty of water from the Tungabudra, but from November to June not a drop can be abstracted from that river without injury to the Krishna delta irrigation, so that capacious reservoirs for storage are essential to the success of the scheme. The scheme was to continue the canal down the Ponnár valley, with an anicut in the Somaishweran gorge, to the sea at Krishnapatam. The canal is completed from Sankasala to the Ponnár, 143 miles, but not so as to be capable of bearing the full amount of water, owing to weakness of construction. Another defect is that sufficient waterway is not provided for the passage of flood waters, either under the canal or by surplus weirs in its banks, for the escape of storm waters entering it when full.

The contract between the Secretary of State and the company was signed on the 3rd of June 1863, and on the 10th of July 1864 water was first admitted from the Tungabudra into the main canal at Sankasala. In July 1864 a flood undermined a part of the anicut, and the body of the work was breached for 22 yards, right down to the rock. The damaged part was rebuilt in the following dry season. By May 1865 the company had a balance of about 130,000*l.* out of their guaranteed 1,000,000*l.* It became apparent that the project could not be completed for the original sum, and on the 2nd of October 1866 the Secretary of State granted a loan of 600,000*l.*, at 5 per cent. interest, to the company, on the condition that if the works were not completed and placed in perfect working order by the 1st of July 1871, the company, if so desired, should surrender the whole of the works to the Government, which would pay the capital laid out on them. By that date the main canal was made, all the sluices in it were built, and the channels for distribution were in a more or less advanced state, 216 miles of them being finished, commanding 91,567 acres. But it appears that if the full amount of water was admitted into the canal the embankments and walls would fail at many places. Moreover the anticipation that water would be eagerly utilised by the ryots, as soon as available, has certainly not been fulfilled. The total collections on account of irrigation and Karnúl water supply during 1872–73 were 9,750*l.*; and the area supplied with water was 11,029 acres, for which 5,000*l.* was paid, an average of *Rs.* 4·9 per acre. The total expenditure on the canal was 21,197*l.* No project for a reservoir has been completed; and the irrigation of the Balari district is still unprovided for, two estimates, amounting to about a million and a half each, submitted in 1867 and 1870, not having been sanctioned.

Yet the main canal and works are considered by the company, in a general sense, to have been completed by July 1871; and the company propose to continue them, and to pay back the Govermnent loan.

The experience of the Madras Irrigation and Canal Company is not generally considered favourable to the employment of companies, with guaranteed interest on their capital, to execute irrigation works in India. The company in Orissa, without guarantee, was unable to carry on the works it had undertaken, and sold them to the Government. Lord Lawrence, in 1864, decided that the State should undertake directly all the irrigation works that it could practically carry out, in preference to entrusting them to private companies, and that the funds for their construction should be borrowed, if necessary. The famines of 1837-38 and 1860-61 in the North West Provinces, and of 1865 in Orissa, had shown the urgent necessity of securing the country, by the provision of irrigation works, wherever it was possible to do so, from the recurrence of such calamities; and in 1867 the Secretary of State fully accepted the principles advocated by Lord Lawrence since 1864. In order to give the greatest possible efficiency to the action of the Government in relation to the

V. IRRIGATION.

spread of irrigation, an Inspector General of Irrigation Works was appointed, and Major General R. Strachey was nominated to that important post in January 1867; he has since been succeeded by Colonel Rundall, who had previously had charge of irrigation in Bengal. In March 1867, Colonel Fife was appointed Irrigation Secretary in Bombay, and Colonel Anderson was nominated to a similar post in Madras. Colonels Greathed and Crofton received similar appointments in the North West Provinces and the Punjab. On the new system the first step is to fix the sum to be assigned for irrigation works from the ordinary revenues of each year, which is not to be transferable to any other classes of works. The grant thus made must first be wholly expended before any charge can be allowed to be thrown on the loan fund. Then the works to be aided by borrowed funds must have been sanctioned on regular designs and estimates, and the cost for any such work must not be less than 10,000*l*. They must also be of a nature which will admit of a proper revenue account being drawn up, from which the exact results of each work can be seen. In special cases minor works may be grouped together to bring them within the requirement of the rule respecting the loan funds. Thus very great activity has been shown in the prosecution of works of irrigation; existing works have been watchfully maintained and extended; numerous important projects have been matured and commenced; and efficient machinery exists for the continuous prosecution of these great undertakings.

In the moist belts, where there is a superabundance of rain, works of irrigation are superfluous; but works of equal importance, as regards the welfare of the people, become necessary in their place. Instead of bunds and channels to raise the water and spread it over the land, embankments are needed to preserve the crops and villages from destructive floods.

The maintenance of the river embankments in Lower Bengal is an important part of the duties of the Irrigation Department, for the cultivation of the land is entirely dependent on their efficiency. Vast tracts of thickly populated country are below the level of high tides on the lower part of the Hugli, and below the flood levels of the rivers, in every part of the valley of the Lower Ganges. There are 2,100 miles of embankments under the charge of the Irrigation Department in Bengal, most of them maintained at the expense of the State. An idea may be formed of the importance of this charge from the fact that a single breach in the embankment of the Cossye inundated 36 square miles, and completely destroyed the crops. The embankments have to be made up to the proper height and section during the dry months, and carefully guarded in the rainy season.

A very extensive series of embankments is under construction along the banks of the Irawadi, in British Burma. During the year 1870-71 the works were in abeyance, but surveys were in progress on several lines on both banks of the river. In 1871-72 work was resumed, and during 1872-3 two important portions of the embankments were completed, by which it is estimated that no less than 200 square miles of land have been reclaimed, which were formerly inundated by the spill water of the Naurin river. Two embankments were sanctioned (the Leymyethna and Zalun) which will afford protection to 150,000 acres at a total cost of 4*s*. per acre, and the earthworks of the same are now almost completed; iron sluices were provided in the Henzada embankment for passing off water lying against it after the subsidence of the floods, and several surveys were in progress.

TURKISTAN
CHINESE EMPIRE
Gobi or Great Desert
Plateau of Tibet
AFGHANISTAN
BALUCHISTAN
The Thar or Indian Desert
RAJPUTANA
CENTRAL INDIA AGENCY
CENTRAL PROVINCES
BERAR
THE DECCAN
HAIDARABAD
MYSORE
BOMBAY PRESIDENCY
MADRAS PRESIDENCY
BENGAL PRESIDENCY
LOWER PROVINCES
NEPAL
BHUTAN
ASSAM
BURMA
SIAM
ARABIAN SEA
BAY OF BENGAL
GULF OF MANAAR
GULF OF SIAM
CEYLON
Laccadive Islands
Maldive Islands
Andaman Islands
Nicobar Islands
A MAP OF
INDIAN
RAILWAYS TELEGRAPHS
PORTS & LIGHTHOUSES
CARAVAN AND STEAM PACKET
ROUTES
Scale of Statute Miles
Guaranteed Railways in operation
Guaranteed Railways in progress
State Railways sanctioned & in progress
State Railways proposed
Telegraph Lines
Lighthouses with limits of radication
Caravan Routes

VI.

COMMUNICATIONS.

The subject of Indian communications includes railways, roads, navigable canals, and harbours. For sea-borne traffic, as was shown on the occasion of the Orissa famine, is quite as important as that by land.

The main system of Indian railways is nearly completed, and the State railways which are now under construction or proposed, will, for the most part, supplement the existing trunk lines. There are now open in India 5,872 miles of railway, which have cost about 97,000,000*l.*, giving an average expenditure of 16,536*l.* a mile. Of this length 727 miles are laid with a double line, and 5,725 miles on the 5 ft. 6 in. gauge. A further extent of 1,850 miles is now in course of execution, of which 817 miles will be on the 5 ft. 6 in. and 1,033 on the metre gauge. As no more lines will be entrusted to companies, all railway construction will eventually be in the hands of the Government. Lines are now open from Calcutta to Multan and Bombay, and from Bombay to Madras. The completion of the latter line was effected on the 1st of May 1871, on which day the Great Indian Peninsula joined that from Madras, by opening the piece between the Krishna and Ráichur. The bridge over the Krishna was completed during the year under review. The piers are wrought iron cylinders filled with concrete, and the superstructure consists of 36 spans of 100 feet Warren girders. In 1871 the chord line of the East India Railway was also opened, 124 miles long, and the branch (23 miles) to the Kurhurbari coal fields. Upwards of 4,000,000*l.* was expended in the construction of railways during the year 1873, the expenditure being nearly equally divided between the Government and the companies. The whole amount of guaranteed capital which had been raised to the 31st March last was 94,725,000*l.*, of which 92,417,000*l.* had been expended. The sum expended direct by the Government amounted to 5,398,000*l.*, making a total expenditure of upwards of 100,000,000*l.* The passenger traffic increased from 20,332,823 to 22,243,220, and produced 2,194,515*l.*, instead of 2,085,942*l.* The goods amounted to 3,266,062 and the minerals to 669,826 tons, and the receipts were 4,294,160*l.* compared with 3,964,614*l.* The miscellaneous traffic was 254,114*l.* as against 301,061*l.* The expenses of maintenance amounted to 786,453*l.*, and of working to 2,771,268*l.*, being at the rate of 53 per cent. of the gross receipts as compared with 55 per cent. in the previous year. On the East Indian the rate was 38. On the Scinde, Punjab, and Delhi it was 69. The net revenue derived from the railways amounted to 3,185,000*l.*, being upwards of 315,000*l.* in excess of the previous year. The gross receipts were 6,742,000*l.* compared with 6,351,000*l.*, and the expenses 3,557,000*l.* compared with 3,482,394*l.* The guaranteed interest advanced by the Government was 1,428,442*l.* in excess of the revenue.

But the railways are now almost completed, so that, with the cessation of heavy outlay on construction, the financial position may be expected to improve. The East India Railway, with its chord line, and Jabalpur branch, altogether 1,504 miles, is all open for traffic. The Great Indian Peninsula Railway (1,278 miles) is completed, with the exception of the bridge over the Krishna. (The Madras Railway (857 miles) is all open, including part of a short branch to the foot of the Nilgiris. The Bombay and Baroda Railway is finished for 406 miles; and the Great Southern of India is opened for 168 miles out of the 383, which will complete it to Tuticorin. Sanction was given in August 1871, for its extension, by Dindigul and Madura to Maniachi, with branches thence to Tinnevelli and Tutikorin.

The Oudh and Rohilkhand Railway is progressing, and was opened for traffic for 523 miles, 42 from the Ganges at Cawnpur to Lacknow, 209 of main line on to Sháhjehánpur, and 81 of branches. Between Lacknow and Murádabad the railway crosses 32 rivers and 60 miles of inundated valley. There will be a branch from Murádabad to Ramnagar, at the foot of the Kamaun hills, 48 miles in length, and an extension from Murádabad to Saháranpur. A branch about 35 miles in length was projected from the terminus of the Ramnagar branch to Nynee Tal, and the necessary survey was made by Mr. Black, railway engineer; but the expense of making even a light railway up the Nynee Tal hills was found to be too great, so the project was abandoned. The large bridges are making fair progress. The most important are those over the Ganges and Rámganga. The cost of the railway up to March 31st, 1873, was 4,104,666*l.*, or 6,910*l.* per mile. The traffic receipts for 1872-73 were 55,502*l.*, mainly made up from carriage of third class passengers, and of food grains, seed, timber, salt, and military stores.

Numerous State railways on the narrow gauge, either commenced or under consideration, will complete the network of communication over nearly every part of

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India. The most important State railway is that from Lahor to Pesháwar (270 miles). The principal works on this line are the large bridges over the Punjab rivers Rávi, Chenáb, and Jhilam. The Rávi bridge, with 33 spans of 90 feet clear, will cost 196,617*l*. It consists of 32 piers, each founded on three 12½-feet-diameter wells, sunk to a minimum depth of 70 feet below low-water level, with abutments and parallel retaining walls founded on 10 feet wells. The whole 32 piers and both abutments are now in progress, and the wells are all sunk to the prescribed depth. If the girders were delivered by October 1873, the bridge might have been made ready for traffic by June 1874. The Chenáb bridge, with 64 spans of 133½ feet, will cost 419,397*l*. Its 63 piers are to rest on triple wells sunk to 70 feet. Most of the wells were sunk during the year, and the piers completed, and at the end of the working season a quarter of the bridge was ready for its superstructure. It may be ready for traffic early in 1876. The Jhilam bridge is of 50 spans of 85 feet clear, and the cost is 147,807*l*. The progress made with the well sinking has been slow, as there is great difficulty and uncertainty in sinking through the boulder bed; and the works have been damaged by heavy floods. Good progress was made during the year on the other work connected with this railway. A large part of the line is completed on the narrow gauge of 3′ 3⅜″, which will be the same as that of the other State railways, but involves a change at Lahor, as the line from Calcutta is on the broad gauge up to that point. The narrow gauge had been adopted for the sake of economy, but it has recently been decided that the whole line shall be constructed on the broad gauge. The next State railway in order of importance is what is called the "missing link," the Indus Valley Railway (480 miles), running from Multan to Bháwulpur and Rohri, and thence to Kotri along the right bank of the Indus, which it crosses at Rohri. This railway will be on the broad gauge. Work during 1872-73 was almost entirely confined to the section of 270 miles between Multan and Sakhar; where 187 miles of bank are complete, and 32 out of 649 culverts have been built. Much material has also been collected. This line will complete the railway communication between the port of Karáchi and the districts of the Punjab.

The Rájputána State Railway (370 miles) is to run from Agra, by Bhurtpur and Jaipur, to the Sambhar lake, being joined at Khera by a branch from Delhi. The portion from Delhi to Riwari, with the salt branch, has been completed, and the first train ran to Riwari on October 21st, 1872. The Holkar Railway (86 miles), which has been begun under contract, is to connect Indor with the Khundwa Station of the Great Indian Peninsula Railway.

The East India Railway has now a total length of 1,503 miles, including the Jabalpúr extension; and the earnings from the passenger traffic increased 4 per cent. during the year 1872–73. The whole number of passengers who travelled was 5,812,277 in 1872, against 5,626,589 in 1871. The great bulk, nearly 99 per cent. of native passengers, travel in the 3rd and 4th class carriages. The increase was greatest at places where the pilgrim traffic comes. There was also an increase in the goods traffic. The Eastern Bengal Railway is 156 miles long, and in August 1873 an extension to Chitpúr was opened, to connect it with the Hugli river and its shipping. The chief work in connection with this line has been the repairing of damage done by the floods of 1871, which has been carried on with great energy and promptitude. The Mutlah line is economically managed, and just pays its way. This and the Nalhati line, each 28 miles long, are the two State railways of Bengal. Both pay their expenses. The Government of India has sanctioned the immediate commencement of work on the projected Bengal Railway, which is to pass from the Ganges to the foot of the Darjiling hills, and to have a length of 204 miles. Extensions are proposed into Assam and Kuch Bahar, and up the Tísta valley, to some place which would serve as a point of departure for the Central Asian Trade.

In the Central Provinces the short State railways are very important, as completing the system of communications in the cotton and coal yielding districts. Those from Khámgaon and Amraoti, seven and a half and five and a half miles, are completed; and a portion, 15 miles long, to the coal beds of the Warda valley, is sanctioned. The work was commenced in March 1872, with the construction of the first 15 miles of the line. It will eventually be extended for 28 miles, on the narrow gauge of 48 inches, to the coal shaft at Warora. In the Nizam's territory lines of railway are sanctioned from Gulbarga to Haidarabad, from Haidarabad to Chanda, and from Warangal to Masulipatam. Surveys have been made for two alternative lines from Nágpur to the great corn-producing district of Chattisgarh, which will tap a country of great importance, where food has often been wasted for want of

consumers. This district produces very largely in excess of the wants of its population, and a railway opening it to the rest of the world would be one of the most important works of communication that could now be undertaken. The northern route was finally approved of, and detailed estimates were to be ready by the end of 1873.

In the Southern Mahratta country, through which the cotton of Dharwar and the Ráichur Doab has long wanted rapid and convenient means of transport to the ports of shipment, the necessary lines of railway have been projected. The survey of a line from the port of Karwar to Hubli and Gadak (144½) has been completed, and extensions from Gadak to Balari, and from Hubli to Sholápur, are also being surveyed. A committee has reported upon this proposed railway from the port of Karwar, by the cotton marts of Hubli and Gadak in Dharwar, to Balari; and the Government of India has now recommended its construction. The traffic is expected to increase very largely, and it is certain that the line will prove highly advantageous as a means of developing the southern districts of the Bombay Presidency. The line from Bangalore to Mysore has been indefinitely postponed, after 13,600*l.* had been expended on surveys, in order that the surplus revenue of the State may be expended on the far more important work of repairing the tanks.

Plans and estimates have also been prepared for a railroad from Rangún to Prom.

The great undertakings connected with the construction of roads have, for the most part, been completed; and some of them have even been superseded by the railways. The Grand Trunk Road up the Ganges valley is parallel with the East Indian Railroad; and the monument recording the construction of the road up the Bhore Ghaut, by Sir John Malcolm, must be a strange commentary, to the few who ever now see it, on the rapid changes typified by the adjacent wonderful line of railroad up the zigzag incline. But other great roads will not be superseded by the railways. The splendid engineering works leading to the Himalayan sanatoria, to the coffee districts of Wynaad, and to the Nilgiris, will be used for many a long year; as well as such a line as that called the South Western Trunk Road, from Calcutta, through Orissa, to Ganjam in the Madras Presidency, which is now declared to be fully completed throughout.

Most of the new roads have been undertaken with a view to forming feeders to the railways, and the local roads have been maintained and constructed by local cesses. In Eastern Bengal roads, except in the hill tracts, are in competition with excellent water carriage, so that, as a rule, it is not considered necessary to spend very large sums upon them. This is the decision the Lieutenant Governor has come to with reference to the Silhet and Cachar Trunk Road. In Western Bengal a road has been commenced, and pushed on rapidly, 27 miles long, to connect the Girhidi station of the East India Railway with the Grand Trunk Road at Dunwi, and the Chota Nágpur districts; and the Bugodur and Hazaribagh road, which is to be completed, brings the latter station in direct communication with the railway. Much progress has also been made with a feeder to bring the Purulia, Ranchi, and Chaibasa districts into communication with the railway. The Ganges and Darjiling road is now completely bridged, the timber bridges being replaced by iron structure on screw piles, with the exception of the Mahánadi at Dingughat, where there is a first-class timber bridge. The road is metalled throughout. The hill portion is largely used for trade purposes. In the North West Provinces the principal work has been the completion of the Naini-Tal cart road, and of that from Sháhjehánpur to Sítapúr; and the progress made on those from Banda to Ságar, from Sursa Nadi to Rewári, and from Almora to the Ránikhet road. In Garhwal 123 miles of road from Srinagar to Niti pass, have been completed to a width of 10 feet, where, four years ago, there was a mere path, in many places almost impassable; it is bridged throughout, and is an important line of communication for traders from Tibet. In the Punjab the trunk line of road from Delhi, by Jallandar, to Lahor, was maintained in a fair state of efficiency; but the section between Lahor and Jhilam is being reduced in width. Many repairs and improvements have been effected, especially on the Kangra valley road, and on those from Ráwalpindi to Umwi, and Pesháwar to Kohat. In the hills the Hindustan and Tibet road was kept open from Simla up the Satlej valley as far as Pángi, a distance of 150 miles. The grain markets show that the roads have provided a means of intercommunication in the Punjab, which is sufficient to equalise prices in a great measure, and to ward off distress when the failure of crops is local. In Oudh, also, much work was done in metalling and improving roads, and planting trees.

In Berár three principal lines of road, in addition to the branch railway, have been under construction for some years; namely, from Akola to Máligám and

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Hingoli, from Murtizapur to Karinja, and from Badnera, by Amraoti, to Morsi, with a branch to Elichpur. The first has been completed as far as Basim. The need for good cotton roads in the Berárs, leading from the railway stations to the chief cotton marts, has long been felt; and as long ago as in 1863, 20,000*l.* were granted with a view to making them passable during the dry season of seven months. A committee in 1861 had recommended the construction of 14 roads across the Purna valley, averaging a length of 25 miles each. The black cotton soil of this valley is 40 to 100 feet deep, and the country is almost impassable during the wet season. Besides the above three lines, to be completed as first-class roads, the fair weather tracts will be available during the cotton season.

In 1862 there were not 18 miles of road fully opened throughout the Central Provinces. Now, two great trunk lines, called the northern and eastern roads, start from Nágpur as a centre. The northern road leads to Jabalpur, through Seoni, a distance of 165 miles. This route has ceased to be of more than local value since the railway has been opened through the Narbada valley, from Khandwah to Jabalpur. But for many years the north-east terminus of the Great Indian Peninsula Railway was at Nágpur, and that of the East Indian Railway at Jabalpur; and in those days the line between Calcutta and Bombay passed over this so-called "northern road," which was a very important link of the chain of communication. The Seoni plateau is about 1,500 feet above Nágpur, and, until this road was made, its products could only be brought to a market by carriage on pack animals. The road, as regards engineering and alignment, is one of the best in the interior of India. The eastern road leads from Nágpur to Ráipur, in Chattisghar. Except a small gap of some 29 miles, it has been completed and opened for traffic in the past year. In 1873 an important girder bridge, and a ten feet arch, in the 68th mile, were completed. Heavy expenditure was incurred in re-metalling this road, owing to the damage done by the narrow tires of the wheels of country carts. The Sagar road is under construction, as the connecting link between Bandalkhand and Western India. The portion at present in hand is that from Sagar to the Kareli Station of the Great Indian Peninsula Railway, 12 miles west of Narsinhpur. This road is eventually to be continued up to Jhansi, but it will fully task the Central Provinces Budget for some years to come to make it up to Kareli (75 miles). Sagar is much higher than the Narbada valley; and the ascent, with the crossing of many streams, will involve a very heavy outlay. Hitherto there has been no line of communication between Bandalkhand and Western India.

On all the roads of the Central Provinces foundations are easy, the mountain passes present no engineering difficulties, but the one serious obstacle, common to all, is insufficiency of funds. Numerous district roads have been completed or improved, and the bridge over the Kanhan river, 80 feet long in 12 spans, is completed.

In the Bombay Presidency much progress was made in completing the communications across the western ghauts from the sea to the Great Indian Peninsula Railway. The embankment of the Konai nulla at the port of Karwar is nearly completed, and the metalling of the Arbyle ghaut road thence to Dharwar is approaching completion. On the Parpuli ghaut road, in Belgaum, all the large bridges had been completed; and in the Kolapur district great activity was shown in road making, no less than nine roads having been constructed or improved. In Sátára a road is in progress from the Konkan up the ghaut to Mahabaleswar; and a bridge was completed across the Krishna at Wái. A great deal of work has also been done in Khandesh. The bridges over the Quoina, Shirwal, and Yerna in the Sátára district have been completed. In Mysore there are now 1,817 miles of road, of which 529 miles are first-class, metalled and bridged; and the completion of two new ghaut roads, makes six outlet for cart traffic between Mysore and the western coast.

The amount of water communication in India is very great; and a part of it has been indicated in the chapter on irrigation, for several of the canals are also adapted for navigation. As soon as the Sirhind canal works are completed there will be navigable communication from Calcutta, up the Ganges, by the canals to the Satlej, and down the Indus to Karáchi. The delta canals of Madras are also much used for boat traffic, as well as the high level, and Cochrane's canal. But it is in the belts of greatest rainfall, the delta of the Ganges, the valleys of the Brahmaputra and Irawadi, and on the coast of Malabar, that water is most largely used as a means of communication. The rivers in the Bengal district of Naddea, namely, the Bhagirathi, Mattabangah, and Jalangi, have long been used as fluvial highways; and a least depth of 4 feet, and a least width of channel of 150 feet, is maintained on the Bhagirathi. The whole outlay on Bengal canals during the year was 20,828*l.*, and the income 38,145*l.*, showing the existence of a great and increasing traffic. There

are two steam navigation companies running steamers on the Irawadi, which made 60 trips in the year. There are also 19,400 boats employed in the Irawadi carrying trade.

One great scheme, which has occupied much attention during the last 20 years was after an enormous expenditure, finally abandoned in October, 1871. This was the famous Godávari Navigation project, which was first urged upon the notice of the Government by Sir Arthur Cotton in 1851. Up to 1861 the sum of 20,000*l.* had been spent on preliminary surveys and other arrangements. The drainage system of the Godávari includes the river Wurda, rising in the Sátpura hills, and separating the Berárs from Nágpur, which is joined by the Painganga a little before reaching Chanda. The united stream flows on until it receives the Wainganga; and 90 miles lower down is the Godávari, which joins the other rivers after a course of 650 miles from the Western Ghâts. From this point to the sea is a distance of 250 miles. There are three great obstructions to the navigation, caused by rocky barriers. The first is 90 miles above the anicut at Dhauleswaram, at a place called Badrachallham, and is 20 miles long. The second is 14 miles long, and is 68 miles above the first barrier. The third is 75 miles above the second, and is 35 miles long; while the distance of the third barrier from Chanda, in the Central Provinces, is 75 miles, and from the cotton mart of Hinganghát 115 miles.

There never was any hope of the Godávari being made navigable all the year round; but it was thought that a boat might make a trip down in 10 days, and return the same season, by being towed up, in 2½ months. Hinganghát is halfway between Bombay and the mouth of the Godávari, and it was calculated that the river would convey cotton at one-third the rate of the railroad. Linseed, ghi, and gingelly, it was thought, would also be sent by the river; while the importations up stream would be salt, cocoa-nuts, some European goods, and military stores. But these hopes have since been abandoned, so far as a remunerative return on the outlay is concerned.

The Godávari works consist of dams or anicuts, canals and locks round the barriers, and clearances of rock in the river bed, including a cutting through a ridge of sandstone rocks at Albaka, between the first and second barriers. The preliminary work consisted of a survey of the river, and a complete profile of the river as far as Chanda. This was commenced in 1854, and the works at the first barrier were begun in 1861. Temporary tramways were constructed round the barriers, in anticipation of the completion of the canals. When Sir Richard Temple inspected the works, in January 1863, 700,000*l.* had already been expended. He recommended that the works at the first and second barrier, and in the river up to the foot of the third barrier, should be proceeded with, at an estimated cost of 255,000*l.*, so that the navigation might be open to the foot of the third barrier by May 1865. The road from Nágpur to Chanda was to have been extended to this point. By August 1865, two-fifths of the anicut at the first barrier, with masonry works, were completed. But in 1871, although the canal was almost completed, the anicut remained unfinished. A channel had, however, been cut through the Albaka reefs. The second barrier works were entirely suspended, and in an incomplete state. The third barrier works were not commenced. There was a steamer towing boats from the second barrier to the coast, which carried a total of 188,312 tons of cargo; and the "Wainganga" steamer continued the communication between the second and third barriers; but the amount of traffic was small.

In a despatch, dated August 1871, the Secretary of State proposed that the navigation works should be completed on the smallest possible scale as far as the foot of the third barrier, whence a road should be made to Chanda. But in October of the same year, at the request of the Government of India, the whole scheme was abandoned, as involving expenditure which did not give promise of any adequate return.

The important line of water communication, parallel to the western coast of India, which is included in the Malabar and Travancor backwaters, was reported upon by Mr. Robertson in 1871. By the completion of the cut through the Warkallai barrier, and by making another cut from the Venjali lake to the Tirur station of the Madras Railway, there will be a continuous line of water communication from Budagivi, north of Bepur, to Trivandram, the capital of Travancor, whence the Victoria canal extends southwards towards Cape Comorin for 15 miles, which is to be extended 30 miles further. The great value of this system of natural canals is best shown during the south-west monsoon. In its centre is the harbour of Cochin, which is capable of being made the finest close harbour in the world; 10 miles broad at its southern end, and from 10 to 48 feet deep. The canoe boats on the backwaters draw half a foot of water, and carry 2,000 to 3,000 lbs. each. The only obstruc-

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tion is the Warkallai barrier, between Cochin and Trivandram, a spur of the ghauts, consisting of a ridge of laterite hills, about six miles wide, with a summit level of 180 feet, ending abruptly in a line of cliffs washed by the sea. From the south a ravine, covered with paddy fields, and lined with cocoa-nut and jack trees, runs up to within half a mile of the summit ridge; and there is a similar ravine on the north side. The sea-cliffs are of soft laterite, intersected by five ravines, and contain a remarkable deposit of lignite. There have been four distinct plans for cuttings through the Warkallai barrier; but the one finally adopted is that of Mr. Barton, the engineer to the Travancor Sarkár. It consists of a cutting through the hill, which, when the depth reaches 70 feet, is to become a tunnel. This happens in two places, and the length of the two tunnels is 2,000 feet. The canal is 25 feet wide and four deep. The work is progressing towards completion, when there will be a continuous water highway for the whole distance from the Madras Railway, at Tirur, to Trivandram, with a large and increasing traffic.

As a means of communication between India and the outer world, the harbours and anchorages have been the subject of much attention from the Government during the last few years; and in September 1870, Mr. Robertson, a civil engineer of eminence, was appointed to prosecute inquiries with a view to the improvement of some of them. During 1870-71 he examined the Madras anchorages on both sides of the peninsula, and in 1871-72 he was on the Bengal and Bombay coasts, and also investigated the schemes for a ship canal between India and Ceylon. The trade ports of India, if every place frequented by native craft be included, are exceedingly numerous. In a list of Indian ports and harbours, prepared for Dr. Forbes Watson by Captain Taylor, as many as 656 are enumerated and described. But it will only be possible in this place to pass the more important ports of India in review in their geographical order, from Karáchi to Chittagong.

The harbour of Karáchi, a few miles to the west of the mouths of the Indus, occupies a most important position as the port of Sind and the Punjab, with a large and rapidly increasing trade. Its western half is formed by a long narrow strip of sand ending with the rocky promonotory of Manora Head; and its eastern by the island of Kiamari. Thus, there are two openings, one between the main land and the east end of Kiamari, called the Chinna Creek, and the other being the main entrance used by ships, between the west end of Kiamari and Manora Point. A bar had formed across the entrance, stretching for nearly a thousand yards, and the depth over it, at low water spring tides, was from 9 to 12 feet. This bar is the result of the waves raised by the south-west monsoon acting on the loose sand lying immediately off the extremity of Manora Point. For the improvement of the harbour of Karáchi, the problem was to remove this bar and produce a deep channel. The depth upon the bar appeared to depend on the velocity and quantity of tidal water passing in and out of the harbour at each tide.

In 1856, the late Mr. Walker, the eminent harbour engineer, was consulted on the subject, and he reported in conjunction with Mr. Parkes, the works being carried out under the immediate direction of Mr. W. H. Price, C.E. Mr. Parkes, who was the consulting engineer of the harbour works, visited Karáchi in 1858 and again in 1864, 1868, 1871, and 1873. The main objects of the design were to increase the volume of water that passes through the entrance at each tide, to give it the right direction, and to shut off, as much as possible, the heavy south-west seas from the mouth of the harbour. Sir Charles Napier had constructed a mole across without openings, from Karáchi to Kiamari Island. The first object was to be gained by blocking up Chinna Creek, and opening a passage in the mole, so that all the water might flow in and out at the same entrance. The second point was to be secured by running out a long groyne from Kiamari Island to seaward, so as to guide the whole force of the scour on to the bar; and the third by a breakwater extending from Manora Point.

This diversion of the Chinna Creek waters, including the bridge over the opening in the mole, the new channel for the tidal waters, and the closing up of Chinna Creek cost altogether 129,981*l.* The new native jetty, near the town, where goods are landed and shipped, cost 43,061*l.*, all exclusive of plant and establishment. The Kiamari groyne was commenced in November 1861, and completed in 1865, at a cost of 48,317*l.* The closing of Chinna Creek, 980 feet across, was completed in 1873.

The present west entrance channel began to deepen and open out about three years after the Kiamari groyne was finished, and a spit off Deep Water Point, on the opposite side, had been removed The construction of the Manora breakwater was then commenced, in 1869, and completed on 22nd February, 1873, at a cost, exclusive of plant and establishment, of 69,489*l.*

This work is especially interesting as being the first that has been constructed in deep water, to break the force of the heavy seas raised by the south-west monsoon on the west coast of India. The breakwater runs in a S.S.E. direction from the southern extremity of Manora Point, and extends 1,500 feet from low water-mark. For the first 500 feet the water is shoal, and the bottom irregular, consisting of conglomerate rocks wholly or partially imbedded in sand, and having a depth of water upon them of 12 to 16 feet at low tides. For the remaining 1,000 feet the bottom is sand, resting on a bed of clay a few feet below the surface, and the depth at the outer end is 30 feet at low tides.

The mode of construction adopted was novel. It consisted of throwing a bank of rubble stone out of boats, until its top reached the level of 15 feet below low water. The surface of this bank having been levelled by divers, a superstructure was built upon it consisting of concrete blocks, each 12 feet long, 8 high, and 4½ wide, weighing 27 tons. They form a wall 24 feet high and 24 feet wide, the top being at about the level of high water-mark. These blocks were made on shore, in moulds, of suitable proportions of conglomerate and sand, mixed with one-eleventh of the total bulk of Portland cement, in Messent's patent concrete mixers. After being allowed a few weeks to harden, they were lifted by a specially designed hydraulic press on to the trucks, and conveyed to the breakwater. The trucks were then run under the "Titan," a strong framework of wrought iron, resting on eight wheels, which ran on rails on the finished part of the breakwater. The top of the "Titan" consists of a platform, the outer end of which projects 25 feet beyond the foremost wheels, so as to command that distance in advance of the finished work. This projecting platform carries a "traveller" and "crab," capable of moving forward and sideways, which lifted the blocks from the trucks, and lowered them into their places. The whole is worked by a six-horse power steam-engine placed at the landward end of the platform, to which additional stability was given by a tank capable of containing 40 tons of sea-water, to counterbalance the overhanging weight of the blocks and machinery. When a sufficient length, about three rows of blocks, was completed, the "Titan" was bodily advanced into a new position, to set another length.

The force to which the blocks are exposed by the weight of water falling upon them, when the sea breaks over the work, is enormous. A few of the harbour-side blocks (about 30 in all, out of 1,850) have been drawn out from this cause, but the damage has been confined to the part over the irregular foundation near the shore, and has been repaired at small cost. The work proved very successful as a shelter from the heavy seas on the bar, the depth (20 feet at low water) dredged during the previous fair season having been for the first time fully maintained during the south-west monsoon.

The total cost of the Karáchi harbour works up to the end of the working season of 1873–74 has been about 450,000*l*., including establishment, and taking credit for value of plant and of land reclaimed. The works are nominally completed, though, as the results are developed, some additions will be required. They have effected considerable increase in the capacity of the harbour for shipping. The direct entrance has now permanently superseded the old circuitous channel, and its depth has increased every year. In 1868 it was 10 feet. In 1872 it was deepened to 17 feet before the monsoon, but it was shoaled by the action of the sea to 15½ feet. It was dredged in 1872–73 to 20 feet throughout, and that depth was fully maintained during the ensuing monsoon. Mr. Robertson reported favourably upon the works in June 1872, and was of opinion that when the works are complete the Government may be congratulated upon having an excellent harbour in Karáchi, 500 miles from the nearest good harbour on either side, and out of the track of cyclones. During 1871–72 the number of vessels that arrived at Karáchi was 1,021 (tonnage 129,508). New sailing directions, recognising the improvements, were issued under the authority of the master attendant in August 1873.

But besides Karáchi there are at least eight ports on the west coast of India which are capable of being converted into first-class harbours; namely, Poshetra, Seria, Shalbet, Bombay, Jyghur, Viziadrúg, Karwar, and Cochin.

The two first are in the Gulf of Kách. Captain Taylor, who surveyed the gulf, describes them as being sheltered from all winds, and capable of receiving the largest ship in the navy at any time of the tide. They are 300 miles to windward of Bombay in the south-west monsoon, when the cotton crops require carriage to Europe, but no use has hitherto been made of them. The third harbour, called Chuch Bunder, is on the south coast of Katiwár, about 30 miles east of Diu Head.

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It is formed by Shalbet Island, within which there is a perfectly sheltered harbour, with good holding ground in five or six fathoms. These excellent harbours were passed over by Mr. Robertson, who, however, visited the ports in the Gulf of Cambay, where the Malacca banks and the rushing tides render navigation very dangerous. He recommends that the mouths of the Narbada and Tapti should be surveyed, but thinks that nothing can be done to improve the approaches, either at Súrat or Broach. On the opposite side of the gulf, Bhonágir has almost extinguished the trade of Gogo, from which it is distant about 15 miles. The former port is a broad creek in which small vessels can lie without grounding during all tides, and can cross the bar at half tides. Kurbunder, the port of Dholera, a name well known in connection with the cotton trade, is a creek into which the tide rushes with great rapidity, but dry at low water, and Mr. Robertson pronounces it to be the most wretched looking place he ever saw. There is no prospect of these ports being improved; and, indeed, the railways into Katiwár, and from Ahmadabad to Bombay, will very much reduce their importance as places of export for cotton.

Bombay harbour is the best on the west coast, but it still wants suitable accommodation to enable ships to load and unload alongside wharves. The problem of sufficient dock accommodation for cleaning and repairing has, however, at length been solved by the erection of one of Mr. Clark's hydraulic lifts at Hog Island. The old docks at the Government yard, as well as the fine new dock at Mazagon for the Peninsular and Oriental steamers, have one fatal defect; they are on the foreshore of Bombay Island, which cannot be approached by large vessels except at spring tides. The requirements of the case were the means of frequently docking and undocking with rapidity, at any time of tide, and with everything on board, vessels of at least the dimensions of the Government transports, which are 381 feet long, with an extreme beam of 49 feet, a load draught of 21 feet, and 4,173 tonnage. Even the ironclads, which on an even keel are brought down to 15 feet, can only enter the Government old docks at spring tides. These requirements have been provided by Clark's hydraulic lift dock, which has been set up at Hog Island, on the opposite side of Bombay harbour. The Bombay Government are fully sensible of the value of this work; for the use of which there might, in their opinion, be at any moment the greatest need. It was, however, only in operation for three months during the year 1872–73, when H.M.S. "Wolverine," the steamer "Sind," of the Bombay Marine, and the merchant steamers "Neera" and "Sir Bartle Frere" were docked upon it.

The number of vessels in 1872–73 that arrived in Bombay harbour was 3,043, and 1,839 vessels sailed.

South of Bombay there are four good ports. Jyghur affords facilities for a commercial port, accessible during the south-west monsoon; and Viziadrúg is an excellent harbour with similar advantages, and at a trifling expense it might be made a first-class harbour of refuge. Karwar is the port for North Canara, and for the cotton district of Dharwar. It is protected by a point of granite, under the shelter of which there is a safe anchorage during the south-west monsoon, and it is capable of considerable improvement. By throwing out a breakwater from Karwar Head for a mile and a half a perfectly quiet harbour might be formed, four square miles in area, with a depth varying from 14 to 32 feet. Mr. Abernethy, C.E., submitted plans for these works in 1860. Nothing, however, has been done beyond the construction of a landing place and wharves, of an iron screw pier, and of a lighthouse on the Oyster Rock.

Jyghur, Viziadrúg, and Karwar were not visited by Mr. Robertson, but he examined the more southern ports in 1871. He proposed some works at Mangalore, with the object of fixing the harbour mouth; but thought that nothing could be done at Cannanor and Calicut, and little at Bepur. He was, however, much struck with the advantages of Cochin, and its splendid backwater. The backwater is of great value as a tidal reservoir to keep the entrance clear, and renders it independent of flood waters for scouring purposes; and every foot of water gained in depth over Cochin bar is permanently retained, and kept almost unvarying by this splendid tidal reservoir. Until 1862 the only communication between the backwater and the sea was at Cochin, but in that year the sea burst through at a place called Cruz Milagre, a mile and a half to the northward, and the opening is now 720 feet wide, with a strong current. Yet the body of water in the backwater is so great, that the escape at this gap has only a trivial effect on the scour at Cochin. In order to improve Cochin harbour, Mr. Robertson's advice is to strengthen the current and confine it, so that it may be concentrated on the bar. With this object he would project long groynes on each side of the entrance, 3,000 and 2,300 feet long, which would

have the effect of keeping a depth of 20 to 21 feet, at low-water springs, in the approach to Cochin. He would also stop up the Cruz Milagre gap. In the backwater, the entrance to which would thus be made accessible, there is room for 50 ships of 700 tons, and any amount of area can be got by dredging. The rise and fall is so small that the backwater is practically a wet dock of greater area than all the docks in Great Britain put together. On either side of Cochin harbour, to the north and south, there are the very remarkable mud banks of Narakal and Alepy, which are most useful as natural harbours of refuge subsidiary to Cochin. No other harbour in the world has such adjuncts. Thus Cochin is admirably adapted to become the great western outlet for the trade of South India. In July 1873 the construction of a new groyne close to the mouth of Cochin Harbour was completed, and two other groynes were lengthened. They hold the coast well. Cruz Milagre gap has been closed by a sand-bag dam run directly across it.

Kolachul is a port on the Travancor coast, near Cape Comorin, which has never been properly surveyed by the authority of Government, but was practically discovered by the coffee planters in the adjacent hills. They found that large ships could sail between some outlying rocks, and ride at anchor to leeward of them in still water. The first ship called there in March 1871, and since that date two other ships have loaded at the port of Kolachul. The place was not visited by Mr. Robertson.

He, however, examined Tutikorin, in the Gulf of Manaar, the port for all the large trade of Tinnevelly. Here vessels are obliged to lie two and a half miles from the shore, and the cargoes are brought out in boats carrying 20 tons. The harbour is well sheltered, but it only has a depth of eight feet; and when the railway extension reaches to Tutikorin, it should be completed across the harbour to Hare Island, when the terminus will be brought much nearer to the ships in the roadstead. There is a stretch of water, seven miles long by four and a half, a short distance from Tutikorin, and on the south side of the Rámnád Promontory, where stands the famous temple of Rámeswar. It is completely sheltered by reefs and islands, and has an average depth of from 20 to 30 feet; but the entrance between Musel and Muli Islands only has a depth of $2\frac{1}{2}$ fathoms, with a sandy bottom. If this entrance was dredged out, so as to admit large vessels, there would be a splendid harbour, infinitely superior to Tutikorin, for shipping the produce of South India. At present it is only occasionally used by coasting craft, and the shores are uninhabited. This harbour has been named Port Lorne.

The question of cutting a canal for large ships between India and Ceylon has recently been investigated with much care. The Rámnád Peninsula is separated from the Rámeswar Island by the Pamban Passage. Rámeswar Island is divided from that of Manaar by the shoals and rocks known as Adam's Bridge; and the whole line is so shallow, or so occupied by land, that a railroad could be made, without much difficulty, from India to Ceylon. But the problem was to construct a canal from the Gulf of Manar to Palk Strait, so as to save the distance round Ceylon. In 1822 Ensign (now Sir Arthur) Cotton proposed alternative schemes, and that for improving and deepening the Pamban Channel was selected. From that time the work has steadily progressed in the hands of the Madras sappers, with a gang of convicts. The passage now consists of two tortuous channels, the northern one, 4,232 feet long, through a sandstone reef, dry at low water, with a depth from 11 to 14 feet, and a navigable width of 80 feet; and the southern one 2,100 feet long, and 150 wide, through a sandbank which has been dredged out to a depth of 12 feet. Blasting and dredging operations were carried on during 1872–73, with a view to deepening the channel from 12 to 14 feet. It would be useless to make the channel deeper, because there is no greater depth in the approaches on either side. But the Pamban Channel has long been of use to the native craft, and to this extent it must be considered a great success, for 12 feet is sufficient for the local trade. The average number of vessels annually passing through the channel during the last 10 years is 2,100, with a tonnage amounting to 173,894.

If a canal for large ships is to be constructed, the line must be sought for elsewhere; either across the promontory of Ramnad, as urged by Sir James Elphinstone and Captain Taylor; or across the Island of Rámeswar, as proposed by Sir William Denison and Mr. Robertson. The site selected by Mr. Robertson is across Rámeswar Island. The southern entrance of the canal would be from a well-protected piece of anchorage nearly a mile long, with a depth from 29 to 26 feet. The surf breaks on the reef between Curesadi and Shingle Islands, leaving

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still water between them and the shore. The line of the canal, from this point, crosses the island, where it is one mile and one furlong in width, about a mile east of Pamban lighthouse. It traverses a sandy plain only 6 to 7 feet above high-water mark; but as the 30 foot line, on the north side, is at a distance of a mile and a quarter from the shore, a large amount of dredging will be necessary there. Mr. Robertson estimates the cost of this ship canal at 440,000*l.*; and he mentions that it will be the only point, from Calcutta to Karáchi, where a large vessel will be able to land and discharge her cargo direct on to a quay, without the intervention of a cargo boat.

He preferred the Rámeswar project to that of the Rámnád Promontory, because the cutting would be longer across the Rámnád Promontory; the level above the sea is higher, and there is probably much rock. The distance from the shore to deep water on the north side is also greater. On the other hand, it is more conveniently situated as regards railway communication, and represents a more complete and grander scheme; but he is in favour of the Rámeswar plan, in preference to that of Rámnád, because it is more economical, and on the whole the cheapest satisfactory short cut to the eastern side of India. But Captain Taylor maintains that no practicable entrance to a ship canal can be found except by Port Lorne or Mutapeta; and that, therefore, the canal must take the line across Toritory Point, the east end of Rámnád. When a ship canal is made, the short cut will save a steamer 350 miles in the voyage from the Red Sea to Madras, and will bring Madras nearer to Bombay by about 370 miles.

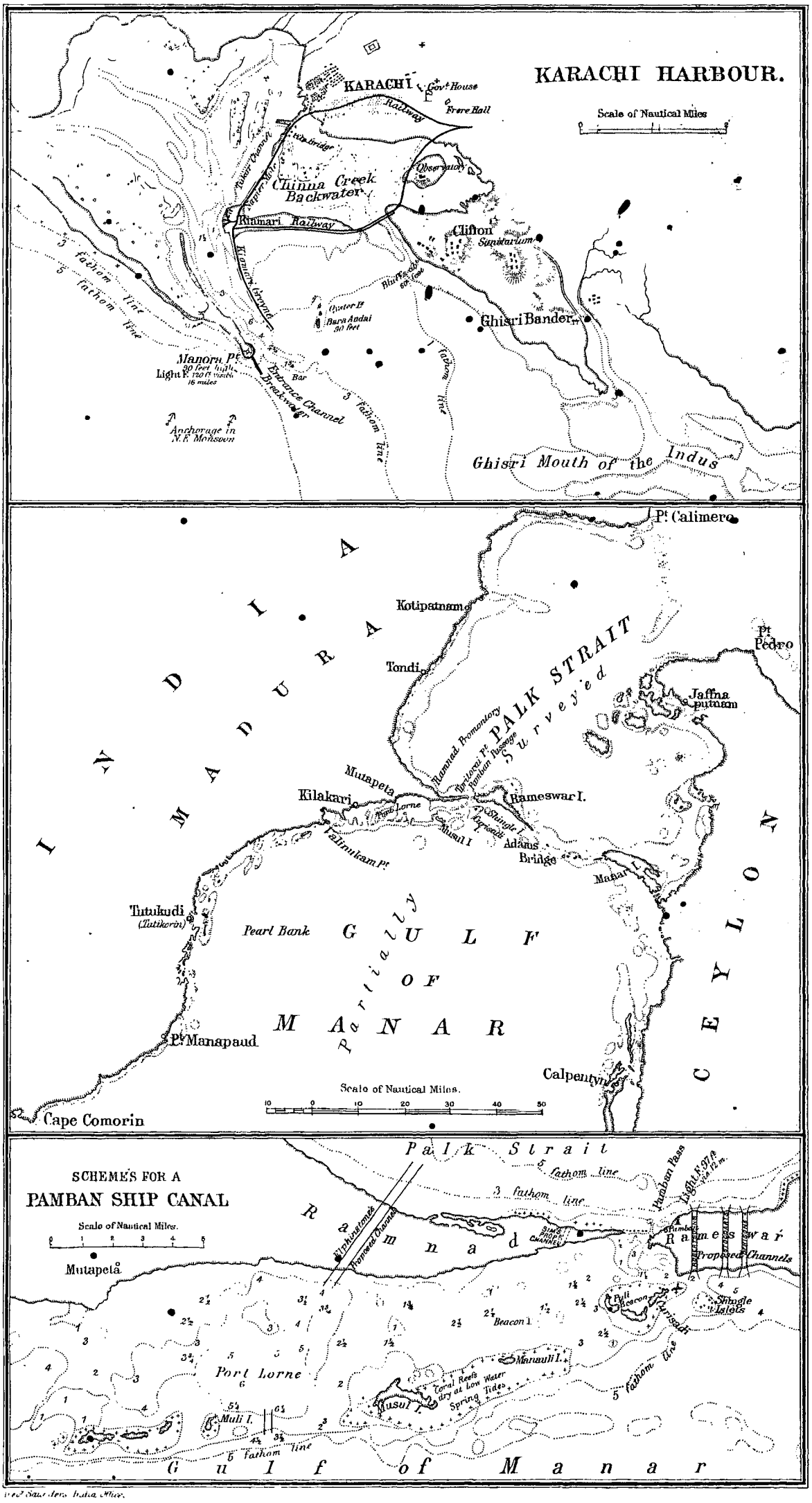
Mr. Robertson took an unfavourable view of the practicability of improving the harbour of Nágapatam, and reported that the gradual silting of Koringa Bay by mud brought down by the River Godávari could not be arrested. The improvement of the port of Madras, and of Blackwood's Harbour, also engaged his attention.

A Committee appointed in 1868 recommended a breakwater as the only practicable improvement for Madras Roads. Mr. Robertson concurs in preferring it to a closed harbour, but he says that it should be in at least seven fathoms, perfectly straight, and 2,000 yards long, and also that a screw-pile pier must be run out to the site of the works while under construction, with two lines of rails. His estimate of the cost is 1,311,000*l.*, and he thinks the breakwater could be completed in six years. In place of a breakwater, however, a close harbour has since been proposed by Mr. Parkes, who visited Madras in the autumn of 1873, and made a report to the local Government, who have recommended its adoption to the Government of India and Secretary of State. Two piers, constructed on the same principle as the Manora breakwater, would be run out, 1,000 yards apart, for a distance of 1,200 yards, where they would approach each other, leaving an entrance, and enclosing an area of nearly 250 acres. The cost is estimated at 565,000*l.* Mr. Parkes calculates that the saving on the cost of landing and shipping cargoes would be equal to the interest on the cost of the harbour.

About 55 miles north of Madras is Blackwood's Harbour, a sheet of water between the coast and Armegan shoal, which protects it from the heavy ground-swell. A breakwater on the shoal, three miles long, might easily be constructed, and would completely shelter a fine stretch of water.

The harbour for the province of Orissa, called False Point, at the mouth of the Mahánadi, is analogous, as regards position, to Koringa Bay at the mouth of the Godávari; but fortunately the action of the Mahánadi does good, while that of the Godávari is most mischievous. Point Reddie, which protects the anchorage at False Point, has increased more than two miles in length since the survey of 1835, and this increases the deep-water area and the shelter for boats. Mr. Robertson pronounces False Point to be the most sheltered anchorage on the east coast of India, and to be of incalculable value for the development of Orissa.

The Hugli involves a question of expenditure so enormous that there is little chance of its improvement being undertaken on an adequate scale. The river is so large, the floods in it so great, the nature of the bottom so soft, the quantity of silt brought down so immense, that any attempt at improving even a single shoal should only be undertaken when it becomes a matter of absolute necessity. The river is not one for experiments. Mr. Robertson was consulted respecting the removal of the Moyapur shoal. At present spurs have been thrown out from the river banks. He pronounces this measure to be a mistake, and dredging is out of the question as too expensive. The widening out of the river permits each of the scouring agents, flood and ebb, to take distinct courses, leaving a strip of river never fully acted upon. The way to improve Moyapur shoal is to confine the two scouring



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powers in one channel, so that there should be a coincidence in the curves of direction of the flood and ebb. Mr. Robertson would effect this by a longitudinal training wall nearly parallel to the left bank, and 1,100 yards from it, about 1,500 yards long, to train the young flood and the last of the ebb into the same channel, but the cost would be enormous. The traffic on the Hugli is very considerable and is increasing. In 1872–73, 1,118 sailing vessels and steamers (total tonnage, 992,211) arrived in the river, of which 342 were steamers and 161 native craft. Of the steamers, 91 came by the Suez Canal. There were 68 Government and 46 licensed pilots in active service, and during the year there were 77 cases of vessels grounding and 6 collisions. The gradual substitution of steam vessels for the brigs and pilot boats now doing the work of the port is in contemplation. Six sailing vessels and two steamers are registered as belonging to the port of Calcutta (tonnage, 6,050).

Chittagong was the easternmost port visited by Mr. Robertson. The port is 10 miles up the River Kurnofali, which enjoys the peculiarity of having no bar. The efforts of the waves to throw one up are counteracted by the strong flood and ebb coast currents sweeping up and down the estuary of the Meghna. Instead of a bar, the river at once falls into deep water, and the mouth is kept clear by the scour of the coast currents; but there is a shoal or flat at the entrance, and extending nearly three miles up, which is probably caused by deposits of silt in suspension in the river water. It is kept to a depth of 10 or 11 feet by the action of the scour in and out, and the depth might be increased by raking. Mr. Robertson considers Chittagong to be one of the best ports in India.

The Bengal Government employed three sea-going steamers during 1871–72; the "Undaunted" at the Andaman Islands; the "Celerity," unsafe in any sea, and fit only for calm weather; the "Nemesis," employed in British Burma, and a sailing ship called the "Czarewitch." There are also 8 Government river steamers, 4 pilot vessels, besides 5 light vessels.

The Bombay Marine consists of the "Comet," on the Tigris; the "Amber-Witch," employed in connection with the Indo-European Telegraph Department; the gunboat "Clyde," dismantled;* the gunboat "Hugh Rose," under the orders of the Political Resident in the Persian Gulf; the steamer "Quantung," under the orders of the Political Resident at Aden; and the "May Frere," and "Dalhousie," despatch boats, the only two vessels available for employment wherever required. The two turret ships, "Mágdala" and "Abyssinia," for the defence of Bombay Harbour, are in every respect efficient for service. The "Constance" schooner is employed surveying in the Persian Gulf.

The lighting of the coasts of India is not perfect, is not even in so complete and satisfactory a state as the lighting of the coast of Spain, or that of Greece; but a good deal has been done, and on the coast of British Burma the system of lighting is admirable. At Bombay the long spit, called the Prongs, running out from Kolába, has bristled with wrecks, owing to the lighthouse being built, not at the extreme end of the danger, but far within it, on Kolába Island. Now a new lighthouse has been erected at great expense, but in the wrong place, so that the evil is as great as ever. It is not at the extreme end of the danger, but half way between that point and the old site on Kolába Island. The masonry works are completed. It may be added, that there is one on Manora Point, 40 feet high, lighted in 1848, for Karáchi. It is, however, very inefficient, and a new light-house is urgently needed for Karáchi harbour. The Rao of Kach has established a lighthouse at Mandavi, the lantern, a fixed dioptric lens apparatus, being fixed on a tower 127 feet high. There are six lights in the Gulf of Cambay. Besides the Prongs Lighthouse, the entrance to Bombay Harbour is shown by two light vessels, a light on Dolphin Rock, and, on the south side, the lighthouse on Kundari Island. This is an octagonal tower 75 feet high, with a dioptric light of the first order, 161 feet above the sea. It was first lighted in 1867. A lighthouse has been constructed on a projecting headland to the south of Jaitapur on the Ratnágiri coast. One was finished at Karwar, on the Oyster Rock, in 1864. The latter is a circular tower, 45 feet high, with the light 205 feet above the sea. Lights are also much needed at Dwarka Point, on Diu Head, at Shalbet Island, and at Viziadrúg. Along the shores of the Madras Presidency there are 19 lighthouses, besides the fine tower, 90 feet high, with dioptric light of the second order, built by Mr. Crawford, at Alepy. Another is much wanted at the Crocodile Rock, 17 miles to the west of Cape Comorin. It has now been resolved to erect a column on high land near the Cape, and to exhibit thereon a first class revolving light, as

* The "Clyde" is to be employed as one of the squadron for marine surveying.

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well as a first class light on Cadiapatam Point, to warn ships off the Crocodile Rock. A new lighthouse 82 feet high, with a white fixed light, has been erected on Hare Island, for Tutikorin, and was first lighted on April 13th, 1874. There is a light in good order at Pamban, and there ought to be another on Point Calimere. At Negapatam there is a fixed white light, two French lights at Karikal and Pondicherry, a flashing catadioptric light on the north esplanade at Madras, a red fixed light at Pulicat, and a white one at Armaghon, a white light (to be converted to a red one) at Point Divi, and a white light on Masulipatam. On Hope Island, at the mouth of the Godávari, a new tower is being built five miles north-east of the old one, in consequence of the silting of Koringa Bay. At Coconada there is a fixed harbour light, and two white fixed lights to the north, one on a hill 150 feet high, and three-quarters of a mile from the sea, at Santapillay, and another at Gopalpur. On the Bengal coast there is a light at False Point, and a tower 82 feet high on Ságar Island, at the mouth of the Hugli, made of iron, with a copper roof. The lighthouses on the Burmese coast are mainly due to the skill and energy of Colonel Fraser. The Alguada reef lighthouse, at the mouth of the Bassein River, 160 feet high, with a dioptric light of the first order, was commenced in 1859, and completed in 1865. The others, to guide ships to Rangún, are the Cocos, Double Island, Krishna Shoal, China Buckir, and Eastern Grove lights.

The great ocean and coasting trade of India renders the provision of accurate charts on adequate scales of the coasts and anchorages, a very important part of the duty of the Government. But since the abolition of the Indian Navy, nothing has been done, except a survey of the mouths of rivers in Orissa and at Chittagong, and no proper arrangement has been made for the execution of much-needed marine surveys. New surveys are urgently required of the Tenaserim coasts, of the coasts beween Calicut and Bepur, from Santopillay to Point Palmyra, from Nizampatam to Cocanada, and of various shoals on the Coromandel coast. A survey is also much needed of the new port of Colachul, and another of Palk Strait and the Gulf of Manaar; and there should be a periodical examination of the river mouths of Mangalor and Cochin, and of the mud banks off Narakal and Alepy. Mr. Robertson has pointed out the need for surveys of the mouths of the Narbada and Tapti, and several others are much wanted. The adoption of effective measures for securing the due execution and continued revision of marine surveys and charts on a systematic imperial plan, is a question which yearly becomes more urgent. In a despatch, dated March 30th 1871, the subject of marine surveys was brought to notice by the Secretary of State as one of very great importance, and as deserving of early and serious attention; and in December 1873 Captain Taylor, of the late Indian Navy, who surveyed most of the west coast of India, proceeded to Calcutta to advise the Government on the subject. The best means of restoring this branch of the service to efficiency had received the careful attention of the Government of India, in communication with Captain Taylor; and the measures that have been adopted with this end will be announced in the Report for 1873–74.

Efficient organisation is needed to execute surveys of localities not yet sufficiently surveyed; to work up the results of these surveys, and of other existing surveys, the materials of which have never been fully utilised; and to maintain the accuracy of the charts by recording and bringing to notice all changes of buoys and lights, and of the configuration of the coast consequent on the continuous action of natural causes. At present the charts are extremely inaccurate, and there is not even a correct list of the lights in the Bay of Bengal. The most urgent work to commence with is a survey of the coast from Point Palmyras to Bimlipatam, and the sea face of the Sunderbuns, with the mouths of the Ganges and Brahmaputra.

The urgency of thoroughly surveying the coasts of India is mainly caused by the increasing littoral traffic. Former surveys, which were sufficient when ships of large draught merely frequented the principal ports, are quite inadequate now that other ports are being opened for the export of produce, year by year, and that a line of powerful steamers runs round the whole coast of India, touching at every port where the traffic gives the smallest inducement. This Section on the communications of India would indeed be very incomplete without some notice of the enterprising company which has done so much to complete them, and to develope the latent commerce between the ports of India.

Eighteen years ago there were, upon the eastern side of India, no steamers but those of the Peninsular and Oriental Company performing the overland mail service, a few Government transports, and occasional steamers employed in the opium trade. On the western side the Peninsular and Oriental Company had the mail services to Suez and China. The home trade was divided between native vessels which put to

sea only in fine weather, and square-rigged ships, carrying native crews and officered by Europeans. The first operations of the British India Steam Navigation Company date from 1857, when two small steamers of 600 tons commenced a semi-monthly service between Calcutta and the ports of British Burma, under contract with the Government of India. In 1858 a third steamer was added. But it was not until 1862 that the present scheme, embracing the whole coasting service of India, was matured. In that year the Company undertook to run a fortnightly mail service between Calcutta, Akyab, Rangún, and Mulmein; a monthly service to Singapore; a monthly service between Rangún and the Andaman Islands; a fortnightly service between Bombay and Karáchi; a service to the Persian Gulf once in every six weeks; and a monthly service between Madras and Rangún. Hitherto the ports of India had been considered to be unapproachable during the stormy monsoons, but the Company had undertaken to maintain regular communication with them at all seasons of the years. By the end of 1863 the Company had 17 steamers afloat, and 4 more building; and in 1864 it was found that the regularity of the services had created wants previously unknown, and that the monthly coasting line between Calcutta and Bombay must be converted into a fortnightly one. These extensions were provided for by the Company steadily adding to its fleet, and increasing the capacity of the new steamers. They are ventilated by the most approved methods, and provided with all new improvements, especially with surface condensers. In November 1869 the opening of the Suez Canal produced a revolution in the shipping trade of India; and this Company's steamer 'India,' with cargo from Calcutta, was the first steamer to arrive in London, with an Indian cargo, through the Suez Canal. In 1872 the Company arranged to extend its operations to the East Coast of Africa; and a service every four weeks was commenced between Aden and Zanzibar, which has since been regularly maintained. This service will have the effect of gradually opening up the trade between East Africa and India. Many natives of India are already settled at the ports on the Eastern African coast, and trade is increasing. The British India Steam Navigation Company now possesses a fleet of over 40 steamers, with an aggregate tonnage of about 52,000 tons. The mileage annually to be traversed, under its contracts with the Government, exceeds 1,100,000 miles, and it employs in the service of its fleet over 500 European officers and engineers, and more than 5,000 natives.

The Madras Administration Report is the only one which furnishes detailed information respecting disasters at sea. In the cyclone of May 1872 there were 7 ships, 11 barques, 3 brigs, 1 sloop, 1 schooner, and 5 dhoneys driven on shore at Madras; the extreme character of the disaster being attributed to the ships in the roads not having been warned in time to slip their cables and run out to sea. There were 19 lives lost. Besides the wrecks caused by the Madras cyclone, 23 others were reported, on the coast of the Madras Presidency during the year 1872-73.

A wreck chart and a statement of wrecks and casualties has been received, showing that during the year 1873 twenty-one wrecks and the same number of casualties occurred on the coasts of British India and Ceylon. Probably this does not include all the native craft, of which more are lost than of any other class of vessel. The largest number of casualties occurred in the Rangún River and its approaches. A good number also occurred on the Madras coast, where there is a great increase of trade, and where the frequent visits paid by vessels of the British India Steam Navigation Company to places but little known has made a survey of the coast from 17° 50′ N. to False Point a crying want.

The electric telegraph is now in working order along every line of railway, and connects every important place in India. But no general report of its operations has been received since 1870-71. No figures have been supplied to the Bengal Government, nor to that of Oudh, nor is there any information in the Administration Reports of the North-West Provinces, Central Provinces, or Mysore. In the Punjab the number of electric telegraphs messages during the year was 49,201 of which 33,706 were private. In the Bombay Presidency there were 161,123 private and 9,482 official messages; the whole value being about 45,000*l*. It is stated differently in the body of the Report and in the Tables in the Appendix.

India has now three lines of telegraph whereby to communicate with England, and for a short time even had a fourth, by China and the Great Northern Company's line, which, however, is now interrupted. There are alternative lines of telegraph from England to India, through Turkey and Persia. The first leaves the European system at Constantinople, and, traversing Asia Minor, passes through Mosul to Baghdad. This section was constructed by the Turkish Government in the year

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1863. In 1864 a line, on iron standards, was erected by the Indian Government, from Baghdad to Fâo, at the head of the Persian Gulf, which was subsequently transferred to the officials of the Porte. From Fâo a single submarine cable was laid to Karáchi, in the spring of 1864, repeating stations being established at Bushire, Ras Mussendom, on the north-east extremity of Arabia, and Gwadur in Baluchistan. A land line had previously been erected along the coast from Gwadur to Karáchi by the Government of India, to ensure communication in case of interruption to that section of the cable which might be endangered by the gales that rage on that part of the coast during the south-west monsoon.

The wire from Baghdad to Fâo, passing through a country where the Turks have little or no authority, was considered to be the most unsafe portion of the line; and in 1863 a line was constructed by British officers to supplement it, at the expense of the Persian Government, from the cable station at Bushire to Tehran, and thence to Baghdad.

This complete system of telegraphic communication between Europe and India was planned and carried out by the late Lieutenant-Colonel Patrick Stewart, of the Bengal Engineers, on the failure, a few days after completion, of the cable laid from Suez to Bombay in 1859, capital for which had been raised by a company on a 25 years' guarantee from the Government of India. Colonel Stewart did not, however, live to see the successful result of his labours. He died at Constantinople in January 1865, from the effects of exposure and over-exertion, a very short time before the lines were formally opened.

The main line above described remained the principal means of telegraphic communication with India until the spring of 1870. During the interval, the Turkish Government, having refused to allow British officers any share in the management of their lines, permitted them to fall into disrepair. The greatest abuses were allowed in their office management, and, although the cable from Fâo to India continued to work well, delays and errors were the rule on the Turkish section. This evil was partially mitigated by an extension of the Russian Government lines from Tiflis to the Persian frontier, and thence by the Persian Government to Tehran. The new line, however, did not work much better than the Turkish; though the section from Tehran to Bushire was kept in good order by the exertions of the officers and men of the Royal Engineers, who were in charge of it.

In the spring of 1870 a new era dawned on the history of Eastern telegraphy. Almost simultaneously with the successful laying of the Red Sea cable, the Indo-European Telegraph Company's line was opened to Tehran. The submarine cable between Suez and Bombay was opened on the 6th of March 1870. The line of the Indo-European Telegraph Company is carried from Tehran to London by way of Tabriz, Tiflis, Kertch, Warsaw, Berlin, and Nordeney, and is constructed in the most solid manner. The Anglo-Persian line, from Tehran to Bushire, had previously been much improved, and a second wire erected. An alternative cable had also been laid from Bushire to Cape Jask, whence it was continued by land wire to Gwadur. The Turkish Government was stimulated by this competition to improve their telegraphs, but they have not hitherto succeeded in attracting more than 10 per cent. of the traffic, although they carry messages at lower rates.

By these three routes the English and Indian public enjoy facilities for the transmission of intelligence, which leave nothing to be desired on the score of rapidity and correctness. On financial grounds, however, none of the lines can be considered successful.

Up to the date of the completion of the Red Sea cable in 1870, the Government lines in the Persian Gulf earned not only enough to clear their own working expenses and to leave a small surplus, but also to support the heavy charges of maintenance of the lines through Persia, to which the Government of that country contributes little or nothing. Since 1870 the lines from Suez to Bombay pay only 8 per cent. on a capital of 1,200,000*l.*, a per centage which does not exceed the yearly depreciation in the value of the cables. The Indo-European Company, with a capital of 450,000*l.*, has not hitherto earned enough to pay its working expenses, after deducting the heavy tax payable on each message to the foreign Governments through whose dominions its wires are carried. It must, however, be added that it is not worked up to a tenth of its powers of transmission.

The Indian Government, since 1862, has expended upwards of 1,150,000*l.* on telegraphic communication with Europe, in addition to 18,000*l.* a year, being half the guarantee on the original Red Sea cable; but since 1868 it has obtained no immediate return for this large outlay. The tariffs have been revised twice. The charge for a single message of 20 words, originally fixed at 5*l.*, was at one time lowered to

2*l.* 18*s.*; and again raised to 4*l.* 10*s.* without any successful result from a financial point of view. The rate of 4*l.* 10*s.* lasted but a very short time. The charge fixed at the conference at Rome in 1873 was 4*l.* for 20 words; and in November 1873, it was fixed at 2*l.* for 10 words, with 4*s.* for every word beyond 10.

The cable from Madras to Penang and Singapore was opened on the 4th of January 1871, and from Singapore to Hong Kong on the 10th of June, 1871. The Australian cable to Madras was opened on the 21st of October, 1872; and during 1872–73 there were 37,809; to and from Madras, to the far east.

The Post Office returns are one means of judging of the results of improved means of communication; and complete returns, giving a general review of the correspondence throughout British India, would be very instructive. In Bengal as many as 21,277,749 letters and newspapers passed through the Post Office during the year under review, the increase being 4·8 per cent. over the previous year. In the North-West Provinces and the Punjab there was also a large increase in the private correspondence. The total number of letters was 14,797,338. In the Punjab the number of letters was 10,135,521, and of newspapers 1,000,693; against 9,486,305 and 850,523 in 1871–72. There were 526 post-offices, 273 letter-boxes, and 587 rural letter-carriers in the Punjab. In Oudh the increase of correspondence and newspapers was equally marked; but for the Central Provinces and Madras no information is given. In the Bombay Presidency the number of letters during 1872–73 was 15,873,064, and of newspapers 1,472,259. There were 447 post-offices. In Mysore the number of letters was 1,007,398, and of newspapers 14,126. Thus the number of letters which passed through the post-office in Bengal, the North-West Provinces, Oudh, the Punjab, Mysore, and Bombay, was 53,606,492, and of newspapers 5,495,788. The whole yearly correspondence of India probably reaches nearly 65,000,000 letters; and the transmission of newspapers to 6,500,000; while the work of all the post-offices is annually increasing.

VII.

FORESTS.

THE Forest Departments in most provinces of India have not been in existence for more than 16 years, and much will have to be done, many difficulties and obstructions must be removed, before they will be in thoroughly effective working order. The importance of their work is, however, beginning to be understood, and when the forest revenues largely increase, the value of conservancy will be recognised even by the numerous class which looks upon any thought for future generations as a waste of time and money.

Forest conservancy effects many objects, among which the natural influence of trees on the drainage of a country is probably of most importance. Though every grove and clump in the dry tracts is a blessing, the value of which cannot be too highly estimated, yet Dr. Brandis, and other officers of great experience, are doubtful whether there is sufficient evidence to show that a material deterioration of climate has been the result of denudation in any part of India, or that the preservation and extension of forests will increase the rainfall. But there is one obvious consequence of the destruction of forests which does not admit of doubt. Where the mountains are bare, the rain rushes down in torrents, giving rise to sudden and destructive floods at the outlets on the plains, and to most injurious freshes in the irrigating rivers; and the supply is uncertain and capricious during the dry season. The same rapid surface drainage destroys roads and bridges, and does other injury, both in the hill tracts and on the plains. On the other hand, where the forests are preserved, the superficial drainage is gradual, the springs are better supplied, and the dry weather discharge is gradual; so that the water is husbanded, either to supply tanks and lakes, or to ensure regularity and safety to great irrigation works in the plains. These are the indirect, though most important, objects of forest conservancy.

The direct objects are, first, to meet a rapidly increasing demand throughout India for enormous supplies of timber and fuel. The cultivators, as their condition improves, require to exchange miserable huts for better built houses and better furniture. There is an immense demand for railway sleepers, for fuel for steamers and railways, and for timber and fuel for large towns. The interests of trade, which have a direct bearing on the prosperity of the people, also require consideration, in order to meet the demand for teak, sandal wood, catechu, lac, caoutchouc, and other forest products. The rapid increase in the magnitude of these demands is strikingly shown by the effect it has had on the export timber trade in some parts of India. The export of timber in North Kanara was formerly all to seaward; but now there is a great demand in the inland provinces, and a brisk trade in timber and bamboos with the Southern Maratha country. In the *dangs*, or forest tracts along the foot of the Khandesh ghâts, a similar change in the direction of the traffic has taken place. Unless the small extent of remaining available forest is very carefully managed, there will be great difficulty in meeting the demands for timber, bamboo, and fuel, which are increasing everywhere, and extensive plantations, as well as careful management of existing trees, are necessary.

The urgency of adopting measures for forest conservancy in India has been very gradually perceived. In 1846 a department was organised in the Bombay Presidency, under Dr. Gibson, mainly with a view to ensuring supplies of timber for the dockyard. In the following year the question of forest conservancy was first raised in the Madras Presidency. General Fred Cotton, in 1847, pressed the necessity for taking some steps to preserve the forests on the attention of the Madras Government. They were, at that time, being rapidly denuded of timber by the Malabar merchants, who supplied the Bombay market. These men, having access to the neighbouring private forests of Cochin, and of the Kolungode Numbidy, had the free run of the Anamallay hills, which were then almost unexplored. General Cotton was executive engineer in Malabar, and he asked for Lieut. (now Colonel) Michael as his assistant, who commenced exploring, conserving, and working the Government forests. In 1848, the Kolungode Numbidy was induced to lease his forest for 16 years—a lease which has since been renewed in perpetuity. At the same time all the minor leases were bought from the Malabar timber merchants; so that, the door being once shut, conservancy and systematic working of the forests became practicable. Between 1848 and 1853 such results were attained as to be appreciated by the Government of Madras. In 1853, General Cotton withdrew from the superintendence.

and Colonel Michael, as forest officer, was placed under the collectors of Malabar and Coimbatore. On March 29, 1854, the Court of Directors sent out a despatch in the Financial Department fully recognising the success of the work; but in 1855, seven years' service in forest pioneering told upon Colonel Michael, and he was obliged to give up the appointment. By that time the importance of forest conservancy had become apparent; and Dr. Cleghorn succeeded Colonel Michael, and became Conservator of Forests in the Madras Presidency. Dr. Brandis arrived in British Burma in the same year. Dr. Cleghorn not only continued the work of Colonel Michael in Madras, but also laid the foundation of forest administration in the Punjab, and was subsequently associated with Dr. Brandis in organising the Forest Department in the Bengal Presidency. His great scientific acquirements were combined with judgment and tact, through which he succeeded in extending the operations of the Department in the Madras Presidency over 20 forest ranges before his final retirement in 1867. In 1864 Dr. Brandis was appointed Inspector-General of Forests to the Government of India.

It has been found necessary to retain as many important forest tracts as possible in the hands of the State for exclusive management, as it is impossible to control the forests efficiently when in private hands, and the Government forests offer the only means of training an experienced body of foresters with practical knowledge. In some provinces the establishment of the absolute right of the State in forests has been easy, owing to local causes, and this has especially been the case in Sind and the Central Provinces. In others, much tact and conciliatory treatment of the people has been required to secure a gradual adjustment of rights, and to save at least a portion of the forest tracts from destruction. Many are still burdened with heavy rights of pasturage and other prescriptive demands. The reserved forests are under the exclusive management of the department.

But the largest portion of the forest area is still unreserved, and the people retain rights of pasturage, of destructive burning, of desultory cultivation, which is equally destructive, and of collecting products. These unreserved forests are generally under local district officers; and, when well managed, they yield a good revenue available for roads and other public improvements.

Thus the forests under the control of Government are divided into three main divisions, reserved forests, unreserved forests, and plantations. The forests reported to have been reserved and secured to the State, cover 6,200,000 acres, as compared with 6,000,000 acres in Prussia, 2,500,000 in France, and 112,000, comprising the Crown forests in England. Much time must elapse before the Forest Department in India can reach a really prosperous condition as regards financial results.

The great mass of the forests, owing to past neglect, is in a poor and exhausted state; and large sums must for a long time be annually spent on surveys, demarcation, boundaries, roads, and plantations. The total revenue of Indian forests in 1872–73 was 477,167*l.*; and the expenditure was 294,686*l.* The surplus amounted to 182,480*l.* against a surplus of 108,398*l.* in 1871–72. The objects of forest conservancy are not those of an opium monopoly or a salt tax. They are to protect the land from destructive floods, to ensure supplies of timber and fuel for the use of posterity as well as of the present generation, and to increase the well-being of the people. The surplus is a satisfactory incident in the management of forests, and it is a sign of that management being good and efficient, but an immediate revenue is not the object in forest conservancy.

The existence of forests, and their character, mainly depends on climatic conditions of temperature and rainfall. In the arid tract of Sind and the Punjab, forests of babúl (*Acacia Arabica*) line the Indus at various points, which in Middle and Upper Sind are mixed with tamarisk and the Euphrates poplar, while *jhund* or *kundi* (*Prosopis spicigera*), an acacia-like tree, *Salvadora*, and an arborescent leafless caper (*Capparis aphylla*), occupy vast tracts in rear of the bebúl forests. The dry belt of the Punjab has woods, on the high land between the rivers, called *rakhs*, also composed mainly of *Prosopis*, *Capparis*, and *Salvadora*. The woodlands of a portion of Rájputána are mainly composed of a beautiful tree, with small leaves and drooping branches, a species of *Anogeissus*; and the southern dry belt, in Mysore, is the region of sandalwood. Outside the dry zones, the teak extends over the peninsula to the northern slopes of the Vindhya Hills, while the sal (*Shorea robusta*), the most important timber tree of India next to teak, forms extensive forests along the foot of the Himalayas in the eastern part of the Central Provinces, the Rewah territory, and the adjoining districts of Bengal. Luxuriant evergreen vegetation is only met with in the two moist belts, the first extending along the Himalayan range to Burma

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and Tenaserim, the second along the western coast, and thence to the summit of the ghats. From the Himalaya come the supplies of pine and other coniferous trees. The deodar has its eastern limit in Kamaun, but it is succeeded by other coniferous trees, one of which, the *Pinus Khasiana*, extends into Burma. The *Ficus elastica*, yielding caoutchouc, is found along the foot of the Himalaya from Sikkim to Asam, and more sparingly at the foot of the Khasia and Cachar hills. In Burma there are extensive forests of *Pinus Khasiana* on the high mountains; famous teak forests between the Salween and Sitang, and magnificent evergreen forest vegetation in the moister valleys, where trees grow to a height of 200 feet. The western ghats are the region of teak and blackwood trees, of poon spars, and of other trees, such as angelly (an *Artocarpus*), vengay, and irul, yielding excellent timber.

Forest conservancy has had to struggle against numerous difficulties arising from the immemorial practices of the natives, as well as from natural causes. The two worst of these obstacles to progress are jungle fires, and the clearing and burning the jungle for cultivation. In the spring the leaves and grass of the deciduous forests dry up, and everything becomes inflammable. The smallest spark is sufficient to create a conflagration, and fires are intentionally made every year either for cultivation or to cause fresh tender shoots of grass to spring up as fodder for cattle.

The thriftless system of jungle cultivation is most destructive. It is called *kumari* in Mysore and Kanara, *jhúm* in Bengal, *kil* in the Himalaya, *dhya* in Central India, and *toungya* in Burma. A patch of forest is cut down and burnt, and a crop is raised in the open space, no ploughing or digging being necessary. In the following year the field is abandoned, and another patch of forest undergoes the same wasteful and lazy process. The damage done by these fires is incalculable. Millions of seeds and seedlings are destroyed, the bark of the trees is scorched, the wood is exposed to the air, and the trees become hollow and useless for timber. Thus a large proportion of trees in Indian forests are unsound, mainly owing to these fires. Steps have been taken to prevent them by isolating the tracts to be protected, and in the Central Provinces the active exertions of Colonel Pearson have achieved the exclusion of fire from the valuable Bori Forest, in the Satpúra range, for the last eight years. But much damage is still done by forest fires in most parts of India, though Dr. Cleghorn obtained the prohibition of *kumari* cultivation in Mysore and part of the Madras Presidency.

Another difficulty of the Indian forester is to clear the valuable timber trees of huge creepers, which stretch over them, and completely smother the crowns of the trees with their foliage. The creepers eventually enclose the trees with a network of branches, destroy their growth, and finally kill them.

The only legislation for the management and preservation of Government forests is comprised in Act VII. of 1865, passed by the Governor-General in Council. By this Act forest tracts may be rendered subject to the provisions of the Act by Government notification, provided that no existing rights are affected; and the local governments are empowered to make rules, applicable to such tracts, for the preservation of trees by prohibiting girdling, lopping, or felling, the kindling of fires, the collection of products, and the grazing of cattle. Rules may also be made for the regulation of the use of streams within the forests, for the safe custody of timber, and for levy of dues and infliction of penalties. Forest rules, under the provisions of Act VII., have been drawn up for Mysore, Curg, the Central Provinces, Berár, Oudh, and Burma. There are also local rules for Assam and the Chittagong forests, and for the Hazáribagh district, but these forests are administered by the civil officers, who have forest officers placed under them for carrying on the executive work. Forest affairs are not yet sufficiently advanced in Bengal for any codified form of rules. In the Punjab there are rules for the Hazára, Ráwl Pindi, Kangra, and Chamba forests, and for the regulation of waif and drift timber on the rivers. In the North-West Provinces there are rules for the Kamaun and Garhwal forests. The Act does not apply to Madras or Bombay, and the Madras Government has always declined to legislate on the subject, but Bombay has prepared a draft Forest Act of its own, which is under consideration. A more complete draft of an Act was drawn up in 1871 for the management and preservation of forests in India, but there is no prospect of its receiving sanction at present.

Meanwhile the main principles of forest conservancy are the definition and demarcation of reserved forests, the prevention of jungle fires, the exclusion of cattle, the opening of roads, and the cutting and clearing away of creepers and grass round the young trees.

In Bengal the principal forest tracts are in Kuch Bahar, Bhutan, Assam, Cachar,

Silhet, Chota Nágpur, Chittagong, and the Sunderbuns. In Sikkim, on the Himalayan range, at 6,000 to 8,000 feet, the chesnut, oak, walnut, cherry, and magnolia abound; while along the Tista Valley, and in the Terai, at 3,000 feet, there are forests of *sal* and *sissu*, and in Bhutan the *sissu* occupies half the area of the forests. In Assam it is intended that the Forest Department shall eventually have the management of the reserved forests only, the open forests being under civil officers. Orders were issued to demarcate the Kamrúp, Duars, the Nambur, and Dhunsiri, and Naugong forests, which are to be made into forest reserves; and much progress has been made by the Department in Assam, in selecting, demarcating, and mapping reserves, care being taken not to trench upon the rights of surrounding villages. Seven reserves, containing 214¼ square miles, have been formed. In Kuch Behar the forests had been marked off on the revenue maps, and placed under the Department; but in June 1872 they were declared to be open, except as regards certain kinds of trees. The forests of the Sikkim Terai, which were declared to be reserved in 1866, are also to be thrown open. The Sunderbuns are forest-covered mud banks, permeated by channels and lagoons, lying between the Bay of Bengal and the cultivated land of the Ganges Delta. Here are 3,108 square miles of dense and impenetrable forest, with an undergrowth, 6 to 12 feet high, of *goran* (*Ceriops Roxburghiana*), mixed with seedlings and saplings of larger trees. Above there is growth of mature trees of no great size, interwoven with heavy creepers. These forests are said to reproduce themselves in from 12 to 15 years. The best timber is the *sundri* (*Heretiera littoralis*); and it is calculated that one-twentieth of the forest area would yield 700,000 tons of firewood and small timber a year. The jungles of Chittagong are extremely dense, and, owing to unrestricted felling and júm cultivation there is no large supply of big trees near the rivers. A scheme for raising revenue from the Sunderbun forests, through a preventive establishment, was rejected as entailing harassing annoyance on the people; but it is in contemplation to close the Chittagong forests on certain rivers, periodically, and so to work them in some sort of rough rotation.

One of the most important products of the Assam forests is caoutchouc, obtained from the *Ficus elastica*, and there have been three proposals with respect to the conservancy and working of the trees. One is that Government shall annually sell the right to collect india-rubber; the second, that the india-rubber should all be purchased by Government; and the third, that Government officers should manage the forests. But much of the rubber is brought in from forests, by wild and half-subjugated tribes, and still more by tribes that are under no subjection at all; so that conservancy is impossible, and a Government monopoly very difficult. Only two courses seem possible, either to allow speculators to make their own bargains with the hill men as they liked, or to enforce an effectual Government control. Sir George Campbell considers the latter course to be the right one. The exports of caoutchouc, which amounted to 21,000 maunds in 1871–72, was only 11,000 in 1872–73; the falling off being due to the closing of the Luckimpur forests, with a view to preventing frontier complications. Another valuable tree in Assam, from its supporting the *moonga* silkworm, is the *soom* (*Michilus odoratissimus*). There are calculated to be 300 square miles of *soom* forest; and the out-turn of silk is 101,940 lbs., employing 43,800 persons.

In Bengal the receipts from the sale of timber and other sources were 14,985*l.*, and the expenditure 9,961*l.*, leaving a surplus of 5,024*l.*

Excepting in Jhansi, the forests of the North-West Provinces are within or at the foot of the Himalayas. In Kamaun and Garhwal the characteristic trees at 3,000 to 8,000 feet are the chil (*Pinus excelsa*), the chir (*Pinus longifolia*), but very little deodar. Below lie the great sal and bamboo forests, which have been much worked, millions of bamboos being annually exported down the Ganges. But there is still a fair amount of native timber near the Kosi and Kamganga rivers. The demarcation of these great sal forests was completed, some years ago, by Colonel Ramsay, then Commissioner of Kamaun. This demarcation went hand in hand with the clearing and settlement of the Bhabar, a tract the nature of which has been explained in the section on irrigation. The scattered population was easily induced to leave the forests and settle in the irrigated region below. A broad road was then constructed from the Ganges to the Sarda, for 160 miles, as a boundary to the forest, above which all cultivation was interdicted. The result of these measures has been that the forests are rapidly recruiting themselves, while the Bhabar tracts shows many thousands of acres of rich cultivation.

North of the Dehra Valley, near the sources of the Tonse and the Bhagirathi, lie

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the deodar forests of Gangotri and Jaunsar. The Tonse deodar forests are now demarcated, the people being compensated by grants of certain portions for their sole use. A valuation survey has been made of most of the principal deodar forests in Jaunsar; and demarcation work is being carried on in the Rhanikhet forests. In the Dehra Dún 17 miles of boundary line have been marked out; and 8 square miles were cleared of sleepers. The Bhagirathi deodar forests have been leased from the Tiri Rajah. In Gorakhpur *sal* is the characteristic tree, mixed with *terminalia* and *acacia*, but there is very little timber left, the forests being mere coppices and utterly exhausted. In Dehra the forests have been felled and re-felled until they are quite worn out, this having been the chief source whence the Upper Doab has drawn its supplies of timber for centuries. In Jhansi, too, the forests contain mere scrub. But in Gorakhpur and Jhansi the Government forests have been clearly defined by the settlement survey, and progress has been made in the Dehra Dún. The deodar forests in the North-West Provinces are the main source of supply for sleepers for the Rájputána State Railway, from Delhi to Agra and the Sambhar lake, a distance of 400 miles, requiring 800,000 sleepers. Much timber has been felled, many sleepers delivered, and others sawn in the Tonse forests, ready to be floated down. The cost of each sleeper delivered at Delhi, from the Tonse and Bhagirathi, is *Rs.* 3. 9. 6., including dues, floating, and cartage. The *sal* sleepers from Kamaun will cost *Rs.* 1. 2. each at the depôts outside the forests, and an extra rupee for conveyance to Agra. The receipts of North-West Provinces Forest Department, for 1872–73, were 164,286*l.*, and the expenditure 101,901*l.*; giving a surplus of 62,385*l.*, caused by the demand for sleepers on State Railways. From the Jaunsar and Bhagirathi forests 407,678 sleepers were supplied, and 39,015 of sal wood from Kamaun and Garhwal. Much damage was caused to the forests by fires, owing to the dryness of the season, especially in Kamaun, Ranikhet, and Gorakhpur.

In the Punjab the principal forests of deodar are in the valleys of the Satlej, Bias, Ravi, Chenab, Jhilam, and their tributaries.

In the Kashmir forests, on the Ravi and Chenab, the number of accessible full-grown deodars is estimated at 117,000, but a most wasteful system of working prevails.

The forests of the Chamba and Busahir States are leased by the Government, and managed by the Forest Department. The Chamba forests, at a height of 5,000 to 9,000 feet in the Ravi and Chenab valleys contain deodar only on steep mountain slopes. The Busahir forests, also containing deodar, are on the Satlej. A large proportion of the deodar in the north-west Himalaya is on the top of high precipices, in side valleys and gorges, and cannot be worked without an expensive system of roads and slides, but there seem hopes that what remains will, for some time at least, suffice for the requirements of the Indus Valley railways, as well as for those of large cities and public works in the Punjab. For the future, however, a permanent supply of deodar can only be secured by plantations on a large scale.

A large portion of the *rakhs*, in the Doabs between the rivers, consisting of about 8,000 square miles of jungle, have been made over to the Forest Department within the last three years. Much progress has been made in the adjustment of claims between the Government and the people, as regards these *rakhs;* the principle being for the Government to concede definite rights to certain portions, whence the village communities can take fuel at their pleasure, on condition that the Government right to the rest is to be considered absolute.

The general want of wood throughout the Punjab was so much felt that great exertions have been made, of late years, to make up for past neglect. The Changa Manga plantation, in the Bari Doab, is on the canal, and 44 miles below Lahor. It is supplied with water from the canal for irrigating the young trees; 4,200 acres have been planted with *sissu*, *ber*, and *kikar*, and the whole area is doing well. It has been completed to 7,200 acres, and in 1881 is expected to yield 33,000 rupees. Plantations are also being established on the Jhilam, near Ludhiána, and near Delhi; and there are avenues along the banks of most of the irrigation canals. The forest receipts in the Punjab amounted to 65,300*l.* in 1872–73, besides about 7,800*l.* as excess of value of stock over the previous year; but the expenditure was 79,594*l.*

In Oudh the forests in the Kheri, Bharaich, and Gonda districts, are on high ground, along the Nepal frontier, and are in reality only strips cut off from the great Nepal jungle. They consist of *sal*, *Terminalia*, and *Conocarpus*, interspersed with open glades of grass land. These forests have been demarcated, and the trees have been thoroughly cleared of creepers. The Oudh and Rohilkhand railway will run chiefly on iron sleepers, but fuel for the locomotives will be required from the

forests, as well as for the towns. Fires were successfully kept out of twenty square miles of forest in the Kheri division; but they burnt through the Bharaich and Gonda forests. The Oudh forest receipts were 29,626*l.*, and the expenditure 14,342*l.*; giving a surplus of 15,284*l.*

In the Central Province there are enormous tracts covered with jungle, but only a comparatively small portion is properly forest.

The forests in the Mandla district, at the head of the Narbada river, contained comparatitities of teak trees, but in 1860 they fell into the hands of speculators and the trees were ruthlessly felled. Thence to Ráipur there are most extensive sal forests, but they are very distant from the markets. Lower down the Narbada there is an extensive forest called Dela Kari, near Pachmari, which is the most westerly position of the sal tree in Central India. Still further west, in Baitul and Hoshangabad, are the forests of teak, from which the cities of Ujjain, Indor, and Malwa were built, but there is little now left. The hills, between the Narbada and Nágpur, though covered with forest, contain little timber of any value.

The vast forests to the eastward, the magnificent teak along the Godávari, and the great *sal* belt round Chatisgarh, extending across the centre of India from the head of the Narbada to Cuttack, are also far from the centres of demand. Proper supervision is impossible, and the jungle tribes cut down and destroy at their own will and pleasure.

But the demarcation of the accessible forests has progressed favourably. A tract of 125 miles has been reserved and demarcated to the north of Nágpur, in the Seoni hills, to supply that city with buildings, timber, and bamboos, while Jabalpur is supplied from the Narbada jungles. The 22 reserve forests of the Central Provinces grouped in five divisions, the most important being on the slopes of the Satpura hills, comprise a total area of 1,832½ square miles. Broad demarcation lines have been cut through the jungles, pillars erected to define boundaries, and fires successfully excluded from selected tracts.

The open or unreserved forests in the Central Provinces are managed by the Deputy Commissioners, and are the property of the Government. Householders take out a license, enabling them to obtain, from the forest lands, the products they require, and the herdsmen take out licenses for grazing. The forest receipts for 1872–73 were 48,167*l.*, and the expenditure 24,784*l.*, showing an increased income and a diminished expenditure compared with last year.

In Berár there are 646 square miles of reserves, consisting of the Bhairagarh Forest to the north, and five smaller tracts in the southern division. The demarcation of the Bhairagarh reserve is complete, and some progress has been made with that of the reserves in the south of the Berárs. It is reported that the inhabitants begin to show a decided interest in the protection of their forests. The Berár forest receipts for 1872–73 were 25,986*l.*, and the expenditure 8,308*l.*, leaving a surplus of 17,680*l.*

In Mysore and Curg there are three great forest belts, the evergreen, the mixed, and the dry. The first is on the western ghauts, and yields wild jack (*angeli*), *pun*, ironwood, and blackwood. The second is a belt on the eastern slopes of the ghauts, from 10 to 40 miles wide, yielding teak and sandalwood, the latter being a Government monopoly. The third comprises the eastern part of Mysore, where the *Hardwickia*, *Terminalia*, and *Conocarpus* grow. The area of reserved forests in Mysore is 428 square miles. There are 7,564 acres of fuel reserves, and 3,366 miles of road have been planted with avenue trees. The Mysore forest receipts were 38,704*l.*, and the expenditure 19,212*l.* The collections of sandal wood for the year amounted to 445 tons, and sales to 429 tons. A map of the Mysore forests has recently been published.

In Curg there are 375 square miles of State forest, the demarcation of which is being pushed forward. During the year 88 miles of new lines were cut; 20 acres have been planted with teak. The Kurg receipts were 8,881*l.*, and the expenditure 2,966*l.* In Curg there are *Devada Kadu*, or sacred forests, which are the residences of demons, and the hunting-grounds of departed heroes. They are never entered, and it seems very desirable that this belief should be encouraged, as it is most conducive to forest conservancy.

In British Burma the forest land covers 4,480,000 acres out of a total of 60,000,000. Of this, the teak-producing forests take up 1,534,080 acres, the forests devoid of teak, but in similar localities, 2,945,920, and there are also low-lying forests not included in the above estimate. In Arakan, forest conservancy is restricted to rules for the protection of the ironwood tree (*Xylia*

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dolabriformis). In Pegu are the four main forest divisions of Rangún, Tharrawaddi, Prom, and Sitang; the richest teak localities being on the hills between the Irawadi and Sitang. The teak forests in Tenaserim, which are now much less valuable in mature timber than those in Pegu, form another divisional charge. After Tenaserim was annexed in 1826, a system of licenses for felling timber was introduced, which would have eventually led to the extermination of the teak trees. Rules were promulgated at various times, intended to secure the preservation of the forests, but without much real success. On the annexation of Pegu, all forests in that province were declared to be the property of the Government, and the felling of teak timber without a license was prohibited. In 1856 Dr. Brandis became superintendent of forests in Pegu, and in 1857 the forests of Tenaserim were added to his charge. Rules for preserving the forests were promulgated in 1856, which were afterwards embodied in the Forest Rules drawn up under Act VII. of 1865.

Great progress has since been made in the demarcation of reserved forests, and up to 1872 a total area of 85,538 acres, or 133 square miles, had been sanctioned as forest reserves. Next to teak the most important forest product is the *cutch*, from *Acacia catechu*, of which no less than 138,142 maunds, valued at 135,330*l*., were annually exported from the province, being collected within British territory. The *cutch* manufactories of the Prom and Thayetmyo districts find employment for 4,000 persons with their families, so that the preservation of the supply is a matter of some consequence. Yet there is no restriction on the felling, and the destruction has been most reckless. The demarcation of the more valuable *cutch* tracts has been sanctioned for treatment as reserved forests.

The teak plantations commenced in 1856 are in large compact blocks on the river, above Rangún, with a separate system on the Sitang, near Tounghu. They are eventually to extend over 30,000 acres; and up to 1871–72, 1,648 acres had been planted. The calculation is, that after the plantations arrive at maturity, the yield will be 1,200,000 cubic feet, or 24,000 tons per annum.

The timber trade of Mulmein is regulated by the establishment of the Kado Depôt on the Sálween river, six miles above Mulmein. Here all timber imported from independent territory is stopped under charge of the Forest Department until it is sold. It is stored on the banks of the river, and a duty of *Rs*. 2. 12. for each log of 5 feet girth and upwards, and *Rs*. 1. 6. for timber below that standard is paid to the British Government (about 6*s*. a ton). The amount of timber from foreign territory at the Kado Depôt in 1871–72 was 81,343 tons, paying a duty of 20,857*l*. By the Sitang river 15,252 tons came down, and by the Irawadi, 1,814.

During 1871–72 the out-turn of the teak forests in British territory was 56,204 logs (52,126 tons), which is considered satisfactory. The whole receipts of the Burma Forest Department were 82,757*l*., and the expenditure 33,620*l*., showing a net revenue of 49,137*l*.

The forests in the Bombay Presidency are spread over a very large area, from Kanara in the south to the Mahi river in the north, a distance of nearly 500 miles.

The best forest tracts are, as a rule, near the line of the ghauts. Kanara, Thana, Colába, and Khandesh are the districts which contain the largest and most productive Government forests.

In the revenue survey, a certain area of each village was set aside as forest land, and the people also enjoyed privileges connected with the public forests, such as cutting grass and brushwood for manuring rice fields, cutting firewood, and free grants of wood for agricultural and building purposes. The two first privileges have been disposed of by assigning to each village a tract of common and of grazing ground; and the other two were provided for by marking off certain forest tracts as special Government reserves, and granting the ryots free access to the rest, with a restriction as to cutting seven valuable kinds of timber trees for firewood.

In accordance with these arrangements, the work of demarcation has been pushed forward, and in 1870 it was nearly completed in the Thana and Kolába collectorates. It is also proceeding in Sátára and other districts.

Forest business, in Bombay, is thus closely connected with revenue administration, and in accordance with the advice of Dr. Brandis, who was employed at the request of the Bombay Government in 1870 to visit the forests in the Bombay Presidency, and to submit proposals for their administration, a district forest officer is appointed to each collectorate, subordinate to the Collector, but corresponding with the Conservator of Forests in his division on all technical subjects connected with his work. There is a Conservator of Forests for each division; Mr. Shuttleworth in the north, and Colonel Peyton in the south, besides the Conservator of Sind. The

general control of all forest business rests with the Conservators, and they will take the initiative in forest matters, but their orders to district officers must be sent through the Collector. These new arrangements came into operation during the year 1871–72. The receipts from the two divisions for 1872–73 were 87,652*l.*, and the expenditure, 55,860*l.*, so that the net forest revenue was 31,792*l.* Plantations have been formed in Kanara and Dharwar. A forest school has been established at Birchi in Kanara, where inspectors and foresters are instructed in the preparation of ground for planting, the formation of nurseries, the opening of pits for sowing teak, thinning, and other forest processes. The experiment has been successful, and arrangements will be made for the attendance of forest subordinates in rotation.

The forests in Sind, along the banks of the Indus, were originally set apart by the Amirs of the country as their hunting grounds, and thus on annexation they were entirely at the disposal of Government. They have long been demarcated as Government reserves, and now cover an area of 352,460 acres, in 86 forests, 25 on the eastern, and 61 on the western bank.

These forests, or *beylas*, depend upon the overflow of the Indus, without which they would speedily disappear. But this inundation fosters the growth of tall dense reed grasses, which require much labour and expense to repress. The loss of forest land by erosion has also been considerable. Some of the forests are but skeletons of what they once were, and the subject is becoming very important. The best remedy, if such were practicable, would be to give up the idea of maintaining permanent forests immediately on the river banks, and to look to their extension in some safer position. The loss by erosion, in 1872–1873, was very severe, being no less than 10,500 acres. The receipts for 1872–73 were 25,499*l.*, and the expenditure 16,227*l.*, giving a surplus of 9,272*l.*, which is an increase over the preceding year.

Forest conservancy in the Madras Presidency was presided over by Dr. Cleghorn from 1856 to 1867, when he was succeeded by Major Beddome. The Government of Madras recorded their satisfaction at the results of Dr. Cleghorn's labours, and their conviction that these results had been attained without any infringement of the privileges of the people.

In 1871–72 the Forest Department was reorganised somewhat on the plan adopted in Bombay; the district forest officers being placed under the Collectors, while the office of conservator of forests was abolished. Major Beddome was appointed Inspector of forests with no direct authority over the officers of the Forest Department, who are even prohibited from corresponding with him, but with the duty of visiting the different districts, and offering advice to the collectors. The new system came into operation on the 1st of October, 1872. Forest conservancy was then placed under the Collectors, with trained Deputy Conservators under them, assisted by advice from the Inspector of forests.

When the Forest Department was formed in 1856, the Government forests had for some time been nominally under the charge of collectors of districts, and as soon as the operations were extended to a district, portions of the forest or jungle, more or less extensive, were retained on a separate footing, under what was styled "Village Jungle Conservancy," with the management of which the forest officers were allowed to have nothing to do. Yet there was no demarcation, and no distinct line drawn, so that the forest officers had no means of knowing the exact boundaries of their jurisdiction; and, as Act VII. of 1865 was not accepted in Madras, there is no forest law in the Presidency.

Dr. Cleghorn ascertained where forests existed, and what revenue was to be derived from them, and his researches into the forest capabilities of Madras were most ably seconded by his assistant, Major Beddome, who explored the forests throughout the length and breadth of the Presidency, and is the author of the first Indian forest flora. Felling and slipping operations were conducted in the Anamallay and Mudumallay Mountains; the establishments were organised, and three maps were prepared, one of the Denkanikota range in the Salem district by Captain Walker; another of South Kanara by Mr. Cadell; and a third by Lieutenant Fullerton of the Wynaad forests.

The first attempts at demarcation were made in 1868–69, when a few jungle tracts were marked off as fuel reserves for the railways in Salem, Cuddapah, and North and South Arcot; but in no case were they surveyed or mapped. Mr. Puckle, the collector of Tinnevelli, also did something towards forming reserve forests in his district, by fixing certain limits for grazing and cutting firewood, which were notified in the district Gazette. But these reserves were never even roughly demar-

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cated. In 1870–71 some tracts in the Madura district were selected for the supply of wood for agricultural implements and fuel; and in the same years portions of jungle were set apart in the Madura district, Tinnevelli, and Trichinapalli districts as reserves for railway fuel, but no demarcation or survey has been undertaken. Indeed, there is no information available regarding the area of reserved forests. In some cases undefined tracts of forest are declared to be reserves, and in others certain descriptions of trees are reserved over specified but undefined tracts. In Ganjam the area of reserved forests is quite unknown. In Kurnúl it is supposed to be about 300 square miles. In Madura there are the forests on the Pulney and other hills. In Tinnevelli the forests at the sources of rivers have been declared to be reserves, mainly to secure the rainfall. In Coimbatore there are the Anamallay Government and leased forests, and in the Nilgiris, the Mudumallay leased forests, and the Wynaad teak belt, about 300 square miles. In Malabar the Chenat Nair forest covers 18 square miles; and there are the ghaut forests of South Kanara. The completion of the survey of the Nilambur Range in Malabar has enabled the correct acreage of plantations to be entered. Great facility in working will be secured by the accurate knowledge thus obtained of the shapes of the different blocks; and by the help of the maps the Collector is preparing a scheme of roads. A systematic valuation, too, can now be commenced. There is very urgent need for an efficient system of survey and demarcation in the other Madras forest districts.

The finest teak plantation in the Madras Presidency, and, indeed, in all India, is the Conolly Plantation on the River Bepur, in Malabar. It was formed by Mr. Conolly, the collector of Malabar, in 1844; and in 1862 Mr. Ferguson, the present superintendent, took charge. He continued to plant 100 acres a year. The plantations are on undulating ground, along both banks of the river, in a climate where the rainfall is 150 inches. They are in narrow belts, extending for several miles, with a width from half a mile to a mile. About 3,000 acres are planted. The river is navigable to the sea, so that there are great facilities for the removal of timber.

In planting new ground the jungle is felled and prepared for burning at the close of the dry season. Nurseries are formed in April. The seed is steeped in cold water for 48 hours, and sown on raised beds of fine mould covered with straw, to prevent too rapid evaporation, and constantly watered until the seeds germinate in 12 to 20 days. When the rains commence, the plants are put out in lines six and a half feet apart, in pits a foot square and deep, filled with good surface mould. The ground is hoed and weeded from time to time, but after four years the young plantations keep down the grass and jungle by their own shade. Thinnings are made in the fifth year.

The largest teak trees are now seven feet eight inches in girth, with noble straight stems, without a branch for 60 or 70 feet. Up to 1865, the number of seedlings planted was 1,678,679, occupying 1,696 acres, and at the rate of 1,000 trees to an acre; there are now about 3,000,000 trees in the 3,000 acres. The sale of saplings commenced in 1859. In 1872–73 the receipts from thinnings amounted to 739*l.*; making a total of receipts since the sales began of 8,297*l.* The whole cost from the commencement in 1841 has been 17,800*l.*, and deducting receipts from sales of saplings, the net expenditure has been 9,500*l.* When freed from the cost of annual extension and maintenance of nurseries and young plantations, a very few years will see a considerable and increasing surplus in the plantation accounts.

Numerous other plantations have been formed in the various districts, 26 for railway fuel reserves, three or four for teak, and two for sandal wood. At Mudumallay there is a plantation of 20,000 teak trees now six years old, and the two sandal wood plantations contain 38,000 trees. Australian gum trees were introduced into the Nilgiri hills about 20 years ago, and now form magnificent plantations, and ornamental clumps round the stations. The quantity of teak timber felled in 1872–73 was 19,466 cubic feet, worth 1,184*l.*, but there was a reserve in store, and the sales were 42,421 cubic feet, worth 7,878*l.* The sandal wood felled amounted to 632 tons, worth 2,949*l.*; and 563 tons were sold, worth 5,762*l.* Sandal wood is also obtained from Mysore and Curg. In 1872–73 the quantity sold in those two provinces was 889 tons, worth 27,896*l.* The whole sandal wood trade thus amounted to 1,452 tons, worth 33,658*l.* The price varies from 36*l.* to 46*l.* per ton for good sandal wood. The receipts of the Madras Department in 1872–73 were 41,876*l.*, and the expenditure 47,814*l.*; but this deficit is quite exceptional, having been caused by the purchase of a forest. In 1871–72 there was a surplus of 7,195*l.*, the receipts having been almost exactly the same in the two years. The receipts are derived from the sale of timber at depôts, permit fees, grazing fees, sales of forest products, fines, and sales of confiscated timber.

This brief review of forest administration shows that great progress has been made in the demarcation of reserved forests, which is the most important work in the department, in the North-West Provinces, Oudh, the Punjab, the Central Provinces, the Berars, Bombay, and Sind; but that in Madras little progress has been made, and no systematic measures have been adopted for securing this great desideratum in forest management.

It is considered of such paramount importance by Colonel Pearson that, last year, while officiating as Inspector-General of Forests, he obtained sanction for the constitution of a special branch of the Forest Department to survey, demarcate, and prepare working plans for all the reserve and communal forests. The work is to be done on a uniform plan, district by district, the forest survey branch working in concert with the revenue and topographical surveys, and settling the forests as the revenue officers settle the cultivated land, in consultation with all who claim to be interested in the matter. This is the same procedure as is followed in Bavaria, Prussia, Saxony, and other German States.

Many exotic trees have been introduced into India by the Forest Department since its formation. The Australian eucalyptus and acacia are established on the hills in India, and the chinchona trees of South America will also soon clothe their higher slopes. It is also in contemplation to introduce the cultivation of the *Hevea Braziliensis*, yielding the Pará india-rubber of commerce, which has been proved to be superior to the article collected by the hill tribes of Assam from the *Ficus elastica*, and some young plants, from seeds purchased and raised at Kew, have already arrived at Calcutta. An exhaustive report on the caoutchouc of commerce has been prepared by Mr. James Collins, in which all the india-rubber yielding trees are botanically described, and an account is given of their cultivation, relative values, and uses. The information thus carefully and systematically collected and arranged by Mr. Collins has established the importance of introducing the cultivation of Para rubber into India. At the same time a good deal may be done to improve the yield of the Assam caoutchouc, by the establishment of plantations on a large scale, and in accordance with a well-considered plan. This measure is strongly recommended by Dr. Brandis, who has added a valuable memorandum to Mr. Collins's report.

Books are much needed for the use of forest officers, especially handbooks for reference in the field, and accounts of systems of forest management in other countries. Major Beddome, in his "*Flora Sylvatica*," of the Madras Presidency, has just completed a most valuable work.

Dr. Brandis has completed a "*Forest Flora*" of North-West and Central India, commenced by Dr. Stewart, and which has been designed with great care to contain all the information a forest officer is likely to need respecting every important forest plant, and yet to be of such moderate dimensions as to be carried about with ease.

An interesting series of reports has also been published on forest management in Germany, Austria, and Great Britain, by Captain Campbell Walker; and in France by Colonel Pearson; with a memorandum by Dr. Brandis on the professional studies of forest officers on leave. Full particulars are given respecting the management of forests in France, Hanover, Prussia, Saxony, Bavaria, Austria, of the Crown forests in England, and of woodlands on private estates in Scotland; which will be most useful in India, as well as an invaluable guide to officers on leave.

For the management of a vast system of forest conservancy in India, the provision of thoroughly efficient officers, with a scientific knowledge of forestry in all its branches, is essential. It is also necessary that such officers should be men of strong constitutions, active habits, and aptitude for work. In 1866, Dr. Brandis, the Inspector-General of Forests to the Government of India, represented the necessity for adopting some plan to ensure a supply of such men, and his proposals have been adopted with the most satisfactory results. The system for preparing candidates for forest service was commenced in 1867. In that year candidates were allowed to go up for examination before the Civil Service Commissioners, and the seven most promising were selected. It was arranged that these young men, between the ages of 17 and 23, should undergo a regular course of training for two years and a half in the management of forests and the science of forestry, in surveying, road making, and the natural sciences, either in Germany or France. A knowledge of either German or French was, of course, made compulsory at the preliminary examination. M. Burckhardt, Director of the State Forests in Hanover, and M. Nanquette, head of the Forest School at Nancy, kindly undertook to superintend the training of the young men, and have continued to watch over their progress and direct their studies

with the greatest zeal and interest. Between 1867 and 1873, 42 candidates have been selected, of whom 22 have been sent to France and 20 to Germany. The number of young officers already in India, who have gone through this professional training, is now 30, and, although sufficient time has not yet elapsed to judge the merits of the present system by the work accomplished through the agency of the officers trained under it, yet the Government of India has already expressed great satisfaction at the attainments and general tone of those who are now in India. The gradual formation of a thoroughly well-informed and efficient staff will, no doubt, be the means of eventually completing the work of forest conservancy, and of introducing correct principles of forest management into all parts of India.

THE
FORESTS
OF
INDIA
1873

Scale of Statute Miles.
100 0 100 200 300

REFERENCES.

State Reserved Timber forests	coloured Green
Unreserved Timber forests	" Red
Fuel Reserves	" Yellow
Timber Plantations	" Brown
Fuel Plantations (Reserve)	" Blue
Leased forests in Native States	" Purple
Forests in Kashmir	" Siena
Woodland Grants in Oudh	
Teak forests in Bombay & Madras (D. Cleghorn)	Em. Green

Note. In the Punjab Reserved and Unreserved forests being much intermingled are coloured Green. Plantations in the same Provinces are for Fuel as well as Timber, but both are coloured Brown, as they are designed on the Coppice system with standard growth.

The Forests chiefly copied from Lt. Col. Pearson's Forest Map 1872.

VIII.

MINERALS.

THE mineral wealth of India is practically confined to its coal seams, salt mines and iron ores; and the latter have not yet been worked profitably on a large scale. Although coal was known to exist as long ago as 1774, and was actually worked in 1775, it is to the more recent labours of Dr. Oldham and his staff of zealous geologists, that the exploration of the coal fields of India, as well as the geological survey of vast areas in all parts of the country, are due. Mr. Blanford thoroughly examined the Ránigaunj fields, and those of Chanda and the Godáveri. Mr. Medlicott has explored those of the Narbada valley, and other areas have been investigated by Mr. Hughes, Mr. Willson, and Mr. King, all members of the Geological Survey.

The coal fields of India lie in a region bounded by the Ganges on the north, and extending beyond the Godávari on the south; while, from east to west, they stretch from the neighbourhood of Calcutta to some distance down the Narbada. Outside this limit, the only coal fields are in Upper Assam and the Khasia Hills. Mr. Hughes has calculated the area, in India, over which coal rocks may be presumed to extend at 35,000 square miles. Nearly all the coals come from one geological formation, called "Damuda," from the name of the river (Dámodar), in the valley of which the principal coal seams occur. It is the same as that of the Australian beds, and differs very little from the carboniferous group of beds in Europe. But the coal is very different, both in quality and appearance. Its most characteristic distinction is its excessive lamination, and it contains from 10 to 30 per cent. of ash, while the proportion of fixed carbon rarely exceeds 60 per cent., and averages 52 per cent. In average English coal, the ash is 2·7 per cent., and the fixed carbon 68 per cent. average. Indian coal is only capable of doing from one-half to three-quarters of the work performed by the same amount of English coal.

Mr. Blanford divides the coal fields of India into four groups; 1st, those of the Rajmahal Hills and Damuda Valley; 2nd, those in Rewah, Sirgújah, Chota Nágpur, Tálchir, &c.; 3rd, the coal of the Narbada Valley and Satpúra Hills; and 4th, the new fields in the valleys of the Wardha and Godávari.

On the Rajmahal Hills there are small coal basins in every large valley traversing the range, with seams from 3 to 12 feet thick. But Rániganj is far the most important of the Indian coal fields, and nearly the whole coal mined in India is obtained from it. The latest returns are for 1868, in which year the number of tons extracted throughout India was 497,000, of which 493,000 came from Raniganj, and 4,000 from all other sources. The field commences about 120 miles north-west of Calcutta, and is 18 miles long from north to south, by 40 wide, with an area of from 500 to 600 square miles. The seams are numerous, and those that are mined vary in thickness from 4½ to 35 feet. Dr. Oldham has roughly estimated the coal available at 14,000,000,000 tons; but many seams vary in thickness, and there are not data for accurate determinations. There are now 44 coal mines at work. The East India Railway has been worked with Raniganj coal ever since it was opened, and the yield of the mines has doubled in the last 12 years. The coal field is now traversed by the chord line of the East India Railway, with a branch line to some of the collieries.

There are four other coal fields in the Damuda Valley. At Jherria, 10 miles west of the Rániganj coal-bearing tract, there are numerous seams of great thickness, which have not yet been worked. The Bokaro field is a long strip of coal-bearing rocks, commencing within a mile of the Jherria field, and extending for 40 miles; but the coal has not been worked, and, so far as is known, it is inferior to that of Rániganj. Rámgarh is a small field, of 30 square miles, to the south of the Bokaro field, and of the same character. Karanpura consists of two basins of coal-bearing rocks, lying west of Rámgarh, and due south of Hazáribagh. They contain a considerable quantity of coal of fair quality. These four, with Raniganj, are all in the valley of the Damuda, and form a belt of coal-bearing rocks extending 150 miles, and occupying 1,500 square miles of country. Over at least half this area workable coal seams of considerable thickness occur, within a distance not exceeding 1,000 feet from the surface; but there is a gradual diminution in thickness of the coal-bearing formations to the westward. Where the Damuda formations attain their greatest thickness, they consist of two groups, the upper one 5,000, and the lower 2,000 feet thick, each containing several seams of coal; but to the westward the

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upper group thins out and disappears, while the lower one gradually diminishes in thickness.

The Kurhurbari coal field, in the valley in the Barakar, a tributary of the Damuda, is to the north-west of the Raniganj collieries, and covers an area of 18 square miles. Mr. Hughes calculates that there is a sufficient supply at Kurhurbari to supply 250,000 tons a year for 800 years. The collieries belong to the East India Railway, and a branch line 25 miles long has been made to them from the Chord line. There are two very small fields containing no workable coal near Deogarh, in the Santhal Parganahs, and a third at Itkuri, to the west of Kurhurbari.

The second group consists of a number of basins scattered thinly over an immense tract of the wildest country in India, and none have been thoroughly explored. The Palamau fields in Chota Nágpur belong to the Government, but there is not much coal. In the South Rewah field the coal exists over an area 40 miles long by 20 broad; in the Upper Son Valley the seams are very numerous but thin, and of poor quality; in Biláspur and the country west of Chota Nágpur there are seams of coal in several places, some of them of great thickness, and at Tálchir, on the Brámani river there is a coal field, but containing no coal of any value.

The third group is included in the Narbada Valley and the Sátpura hills, which form its southern boundary. Here the Mopani collieries belong to the Narbada Coal and Iron Company. The average thickness of the coal seam is 25 feet, and, though there are numerous faults and dykes, it is believed that a large quantity exists, and that the quality is little inferior to that of Rániganj. This company was formed in March 1860. The site of their grant is twelve miles east of the main line of the Great Indian Peninsular Railway, and 80 miles south of Jabalpur. But there was no demand for the coal until March 1870, when the railway was opened to Jabalpur. In 1872 a branch line was opened to the company's colliery, from the Great Indian Peninsular Railway, and the demand for coal is now greater than the supply. The manager estimates the known coal on the company's ground at 214,500 tons. The receipts for 1873 from the sale of coal were 10,635*l.*, being 10,463 tons of round and 705 of screened and small coal. At Umret, near Chindwara, there are several seams of fair coal over a considerable tract; and also in the Tawa Valley, between Baitul and Hoshangabad. The Mopani coal fields were examined by Mr. Medlicott during the season of 1870–71; and in the following year, 1871–72, he was engaged on similar work in the Sátpura hills, where he has since been succeeded by Mr. Ball.

The fourth group of coal fields lies on the edge of the great sandstone tract which occupies the valley of the Godávari, and its tributaries, the Wurda and Pranhita, from the neighbourhood of Nágpur to that of Ellor. Workable coal is known to exist in several localities, which have been examined by Mr. Blanford and by Mr. Hughes. The existence of coal in the Chanda district, in the Central Provinces, was first pointed out by James Prinsep in 1830, but the geologists of the survey were the first to trace out the limits of the field, and to make a detailed examination of it, which is still in progress. The existence of a very thick seam of coal and carboniferous shale has been ascertained, 50 to 70 feet thick, over a large area of the Central Provinces and Berár, and again a few miles further south in the Nizam's territory. At Pisgaon, in Berár, coal-boring operations have been commenced, and a shaft sunk 52 feet; but more powerful pumping machinery has become necessary. The quality of the coal hitherto mined is inferior to that of Rániganj, but good enough for railway purposes. There are several borings in the Chanda district, but the principal shaft is sunk at a place called Warora. It was impeded by water, and new and more powerful pumps were ordered from Bombay, to be ready by August 1872. New and more powerful machinery was set up in February 1873. Since then there has been steady progress. At 176 feet below the pit-head coal was reached, the seam being 15½ feet thick, and another 11 feet thick, lying a short distance below the main seam. If the double seam is continuous over the whole coal field at Warora, there will be 100,000 tons of coal a year, for a hundred years. In 1870–71 Mr. Whyte, who is engaged on similar investigations in the Nizam's territory, proved the existence of coal at a place called Sastu, more than 50 feet in thickness.

Mr. Blanford during 1870–71 carried on the general mapping of the extent of the sandstone area in the eastern part of the Nizam's territory, and southwards into the Madras Presidency, towards Ellore. These sandstones appear to belong to the

true coal-bearing rocks, but they are for the most part devoid of coal. At Kamáram, in the extreme east of the Nizam's dominions, and 100 miles north-west of Ellore, there are two seams, 9 and 6 feet thick respectively, of good quality, but only occupying an area a quarter of a mile square. In 1871–72 Mr. King, of the Geological Survey, discovered coal at a place called Singharani. 30 miles south-east of Kamáram, where about two feet of the seam are visible. The Singharani bed is interesting as the most southern coal yet discovered in India. Numerous trial borings were made by the Nizam's officers in 1873, and a considerable amount of coal was proved. Mr. Blanford in 1871 mapped the coal-bearing rocks of the Godavari, and a series of borings were taken, in accordance with his suggestions, near Dumagudem, the head-quarters of the navigation works at the first barrier of the river: but the coal was found to be of inferior quality.

Outside these four groups of coal fields there are two to the eastward of Calcutta. One, where some coal has been found of excellent quality but of limited extent, is on the Khasi hills, 4,000 feet above the level of the plain; the other is one of the most promising fields that has hitherto been discovered. It occurs in the Dibrugarh and Sibsagar districts, in the extreme east end of the Assam valley, and there are several seams of excellent coal; but the country is densely covered with forest and very thinly peopled, which makes it unfavourable to commercial enterprise. A mineral survey has been ordered to be made of the foot of the hills in the Darjiling Terai and Bhutan Duars. The chief hope of results lies in the fact that rocks of Damuda age, containing the well-known fossil plants of the Indian coal measures, occur along the inner boundary of the tertiary sandstones flanking the mountain range. But the occasional carboniferous deposits in these younger formations themselves have not hitherto offered any encouragement to extended research.

In the year 1872–73 the coal trade of India was depressed. The out-turn of coal was 322,443 tons, the lowest since 1858, and the import of coal at Calcutta (48,714 tons) also fell off. Since the opening of the Suez Canal there has been a falling off of 200,000 tons in the produce of the Indian coal mines, and, until 1872–73, an increase of imports from England. There is not even a market for large quantities of coal already raised. Yet the high prices in England may eventually be expected to increase the demand for Indian coal, and next year a favourable reaction may be expected. The results of its use on Indian railways prove that the best native coal is a little more than 10 per cent. inferior to English coal, and much cheaper. The development of the coal-producing industry of India will be caused by the local demands of the public works, of railways, river steamers, and manufactures, and hereafter Indian coal will probably be employed in manufacturing iron.

Iron-producing minerals are widely scattered over India, and consist, 1st, of magnetic and specular iron ores and red hematite, in beds and veins; 2nd, of clay iron ores from the coal-bearing strata; and 3rd, of surface deposits derived from the waste of metamorphic and sedimentary strata, and from laterite. The latter formation contains from 20 to 30 per cent. of iron.

Some of the most remarkable deposits of magnetic iron ores are in the Salem district of the Madras Presidency. The ores occur in immense beds, 50 to 100 feet thick, the outcrop of which may be traced for miles. On one hill, six miles from Salem, there are five bands of magnetic iron from 20 to 50 feet thick. At Lohára, in the Chanda district of the Central Provinces, there are two localities, five miles apart, where hematite abounds. At the eastern one there is a mass of dense red hematite, forming an isolated hill 120 feet above the surrounding level of the country, which would probably yield 300,000 to 500,000 tons of iron without going below the surface. The other mass is smaller in extent. In Bandalkhand and in the Narbada valley there are large quantities of hematite ores, the supply in many cases being practically inexhaustible. The clay iron ores in the Rániganj and other Damuda coal fields yield 39 per cent. of iron. The Kamaun iron ores form an argillaceous band, containing large quantities of red hematite, the ore bed being 10 to 20 feet thick, and extending for a long distance. The surface deposits supply the greater proportion of ores used by native smelters, but much labour is necessary in the collection.

Iron has been manufactured in India from time immemorial, and weapons of that metal are even found in the ancient cromlechs and kistvaens, but there never were any large works. The production of iron is the work of poor people of very low caste scattered over the country. They have small clay furnaces, with charcoal for fuel, and the blast caused by foot or hand bellows. The smelting goes on for eight or ten hours, at the end of which time from 10 to 20 lbs. weight of iron is found at

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the bottom of the furnace, and is purified by re-heating and hammering, the resulting iron being generally of excellent quality; but the native manufacture is decreasing, owing to the difficulty of obtaining charcoal. Iron smelting, and shaping the material into agricultural and other implements, is, however, carried on, in a rude, primitive way, in many parts of India, especially in the Central Provinces and Dharwar.

All attempts to manufacture iron, made by the English, have hitherto utterly failed. In 1825 Mr. Heath, of the Madras Civil Service, obtained a Government advance, and formed a company to establish iron works at Porto Novo, near Cuddalore; at Palamputi, near Salem; and at Bepur, where the iron was obtained from laterite. The Porto Novo works were commenced in 1833, and those at Bepur some years later; but, in spite of help from Government, there was nothing but failure, attributed to the distance of the works from the source of supply, to scarcity of charcoal, and to other causes. Company succeeded company, and at last there was an utter collapse. In 1857 Mr. Sowerby, an engineer, reported on the iron ores in Kamaun, but the attempt to work them ended in financial failure. The Kamaun Iron Company stopped its operations in 1863. This year Mr. Hughes has made a favourable report on the iron of Kamaun. He considers the iron ores in the Ramgarh Circle to be good and plentiful; and the ores in the Keladhungi and Déh Choari Circles to be not so good, though the supply is very great. Mr. Hughes thinks that the high price of coal in England may furnish a better chance for iron manufacture in India. A similar attempt by a Calcutta merchant, who started works near Suri, in Bírbhum, was also abandoned.

The enterprise of the Government in the Narbada valley, however, promised well, and might have been most successful. Works were erected at Burwai, on the Narbada, under the auspices of Colonel Keatinge. Mr. Mitander, a very able Swedish metallurgist, was induced to take charge of the works, and, after many experiments, all difficulties were overcome, and the works were ready for the production of iron. Suddenly, in 1864, the Government, after spending 75,000*l.* on these preliminary expenses, dismissed Mr. Mitander, closed the works, and offered them for sale, without success. They have now, with the ground on which they stand, been made over to Holkar. Iron ore and limestone abounded in the neighbourhood; large forests, furnishing supplies of charcoal, extended for many miles to the east and north-east; and Mr. Mitander was an excellent manager as well as a scientific metallurgist. No record has even been preserved of the experiments and plans of Mr. Mitander for burning and storing charcoal, and for other processes, which would have been useful hereafter.

The Government are now once more anxious to foster the iron manufacturing industry of India. In 1872 Mr. Bauerman was sent out to report on the subject; and the increasing price of iron in England is most favourable to the prospect of the manufacture proving profitable in India. The use of Indian coal for smelting iron has never yet been tried. Mr. Bauerman, during 1872–73, visited the iron ore districts of Rániganj, Kamaun, Chanda, &c.; and his conclusion is that, under existing circumstances, the Rániganj coal field is the most promising place for a trial of the practicability of iron manufacture in India, on European methods. In this opinion he has the concurrence of the Geological Survey, and has simply re-stated the case as it has all along been expressed by its members. Mr. Hughes has since considered and reported upon the adaptability of Raniganj as the site of iron works. Coal is there in abundance. The iron ores are of two kinds, those represented by laterite and those associated with the coal measures. Mr. Hughes considers that the main dependence of any iron works must be on the ores of the coal measures. The iron stones cover an area of several square miles, in thin beds. There is an unlimited quantity of *kunkur* (nodules of impure limestone), which must be relied upon as a flux. The cost of a ton of coal is placed at *Rs.* 3, iron ore at *R.* 1, and *kunkur* at *Rs.*1. 8.; and the cost of manufacturing a ton of pig iron is estimated at *Rs.* 24.

The supply of salt from the Salt Range running through the Jhilam and Sháhpur districts, and on to Kalábágh, is practically inexhaustible. The principal beds occur in the southern slopes of the range, and are from 150 to 200 feet in thickness. The mines are of two kinds; one where the salt rock is approached by galleries and excavations, and the other where, as at Kalábágh, the salt is at the surface, and is quarried. It is excavated at four places, namely, at Kheora, now called the Mayo Mine, and the Sardi Mines, in the Jhilam districts; at the Warcha Mine in Shahpur; and at the Kalábágh quarry. Salt exists in large quantities at eight other places,

but these mines are closed to prevent smuggling. In the Kohat district, salt is obtained from five quarries in the chain of hills running from the Indus towards Bohadur Khel, and is of a black or dark green colour, being found near the surface. With reference to the supply from the Salt Range, Dr. Oldham says, that nowhere else in the world are salt deposits of such vast extent and purity known to exist.

There are copper mines in Kamaun, Garhwal, Nepal, and Sikkim, which are worked on a very small scale by natives, and the produce is very considerable. There is a small mine at Jáipur, in Rájputána, and copper ore is found in the hilly portions of the Gurgáon and Hissar districts, and in Kulu and Spiti. There is also copper ore in Singbhum, to the westward of Midnapur, extending over 80 miles; and old workings abound, but much fine ore remains. Lead occurs, in the form of sulphuret or galena, in Kulu, Garhwal, and Sirmur, in the north-western Himalayas. There is also a lead mine near Sabáthu, in the Simla district worked by the "Patiála and Subáthu Mining Company," which yields about 40 tons of ore a month, containing 16 to 72 per cent. of lead. In 1869 Mr. Blanford examined a promising lead vein at Chicholi, near Raipúr. There are very rich tin deposits in Tenaserim and Martaban, and a project has been submitted to the Government for working them; but the country is very wild, covered with dense forest, and thinly inhabited, and there are no roads or means of carriage. Gold occurs in many parts of India, but always in very small quantities in stream gravels. It is occasionally extracted in the north-west Himalayas, Chota Nágpur, Assam, Singbhum, the Godávari valley, and some other places. In the Punjab not more than 3 or 4 annas' worth of gold can be obtained by a hard day's labour at washing. Silver occurs, associated with lead, in Kulu. Antimony, in the form of what the natives call *surma*, is produced in great abundance in the Himalayan range, and, reduced to a fine powder, is sold by druggists as a cosmetic for the eyes. The ore occurs in Kulu and Lahul. An ore of cobalt, in small quantities, is obtained near Jaipur, in Rájputána, and is used for colouring enamel.

Petroleum is procured in considerable quantities from Upper Burma, and some is known to exist in Pegu and Assam. Mr. Theobald, of the Geological Survey, reports its discovery in Pegu, in several localities, but nothing but experimental shafts can satisfactorily settle economic value. A little oozes from the ground at several places in the Punjab, and gasworks were erected at Ráwalpindi, with the intention of utilizing this mineral oil for lighting the station. But the supply was found to be insufficient.

Dr. Oldham and the Staff of the Geological Survey have done all that was possible in the time that has elapsed since their labours commenced 23 years ago, to acquire and disseminate an accurate knowledge of the mineral resources of India; while their investigations, embracing the whole range of geological science, of which inquiries into the economic value of minerals form but a part, have achieved most satisfactory results. In spite of all difficulties of climate, inaccessibility of districts, and slowness of means of travel, they have examined an area about four times as large as Great Britain. The detailed and matured results of the survey are published in the "Memoirs," with maps and illustrations, while the "Palæontologia Indica" is a superb series, containing figures and description of organic remains, collected during the progress of the Survey. The "Records," published every quarter, contain a series of shorter papers, giving an account of current geological proceedings. Much interesting work was finished or commenced during the season of 1872–73, which is reported in the "Records." Mr. Theobald completed the first geological examination of Pegu, which had been begun by Mr. Blanford in 1860. No one who has not made the attempt can form a conception of the difficulty of observing rocks in a wild tropical region, such as formed the field of this Pegu work. Rank vegetation produces deep soil, and a geologist may march for days through a hill country without once getting a fair section of rock in place. Mr. Theobald has discovered series of triassic, cretaceous, and nummulitic strata on the Arakan side of the Yomah hills, beneath the tertiary deposits of the Pegu Yomahs. Mr. Theobald now proceeds to the North-West Provinces, where one of the most interesting problems of Indian geology awaits solution. This is the obtaining of materials for establishing the palæontological sequence in the immense series of deposits based upon the marine nummulitics, and ending above in the deposits containing the gigantic mammalian fauna of the Sawálákhs.*

Dr. Stoliczka, the palæontologist of the Geological Survey, accompanied Mr.

* See *Memoir on the Indian Surveys*, p. 148.

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Forsyth on his mission to Kashgar, and has communicated a paper on the structure of the hill ranges between the Indus Valley in Ladak, and the borders of Turkistan at Shah-i-dula. He found that the whole system of ranges between the Indus and Turkistan was bounded on the north and south by syenitic rocks, including between them Silurian, carboniferous, and triassic formations. His observations also furnish evidence that once there were far more extensive sheets of water, of which the Pangong and other lakes are the remains, enclosed between the lofty ridges; and he furnishes proofs that the climate of those cold and arid regions was then both milder and moister, and therefore more favourable to animal and vegetable life than it is now. The melancholy intelligence of Dr. Stoliczka's death, on his return journey from Kashgar after having penetrated to the Pamir Steppe, has recently reached this country.

The commencement of the systematic publication of the maps of the Geological Survey was made in 1873 by the issue of the twelve sheets of the district of Dumoh, on the scale of one inch to the mile. The final and general form of publication will be the sheets of the Indian Atlas, coloured geologically; and quarter-sheet, No. 77 s.w., was published during the year. Several of the adjoining sheets are ready for the engraver.

NOTE.

The numbers on this Index are repeated in the following list, with reference to the Volumes of the Memoirs & Records of the Geological Survey of India &c., where the Maps will be found.

1" Index Mission to Ava	Memoirs.	Records.
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Indian Atlas. Sheet 78. N.E.

AN INDEX TO THE GEOLOGICAL SURVEY OF INDIA 1873.

Scale of English Miles.

100 0 100 200 300

Colours

Geological Maps Published

Preparing

Survey in Progress

Reports only

The Sheets of the Indian Atlas are to be coloured Geologically, and the following are published:— Sheet 78, N.E., S.E., N.W., S.W. 79, N.E., S.E., N.W., S.W. See the Index Map to the Indian Atlas

IX.

TRADE AND MANUFACTURES.

THE trade of India is only represented in a small degree by the returns from the great sea-ports, for the bulk of production is consumed in India itself, and the value of external commerce is only a fraction of that of the internal and interportal trade combined. There are no very reliable statistics of the internal trade, but that from port to port is steadily increasing; and although external trade is said to have shown continued depression during the year 1872–73, yet there is an increase as regard several of the most important staples. The whole sea-borne trade of India, exclusive of treasure, during 1872–73 is reported to be worth 107,485,697*l.*; of which the foreign trade represents 86,488,056*l.*, and the interportal 20,997,641*l.* In the former there has been a decrease of 7,781,538*l.*, and in the latter an increase of 1,095,412*l.* The imports from foreign countries amounted to 31,260,561*l.* in value, and the exports to 55,227,495*l.*, both exclusive of treasure. The importation of bullion and specie was very much less than in 1871–72, amounting only to 4,556,585*l.*, against 11,573,812*l.*, a decrease of 7,017,227*l.*; while the quantity exported, 1,298,080*l.*, remained nearly the same. The precious metals to the amount of 358,505*l.* remained in India. This great falling off in the importation of bullion and specie seems to indicate that the balance of trade in 1872–73 was settled, to a larger extent than in 1871–72 and the five preceding years, otherwise than by payments of the precious metals. The falling off in exports is due mainly to the decrease in the quantity of raw cotton shipped, owing to American competition and low prices, and, to some extent, to a very satisfactory increasing demand for cotton from the manufactories in India. The diminution in the value of exported cotton nearly corresponds with the falling off in the value of imported treasure; the one amounting to 7,250,322*l.*, and the other to 7,017,227*l.* There is also a decrease of 1,938,948*l.* sterling in the value of opium exported.

Thus, after deducting the treasure which remained in India, there is an excess of 23,966,934*l.*, representing the value of goods sent out of India over and above the value of the imports. This fact suggests interesting questions relating to the way in which Indian trade is balanced; and Sir Richard Temple, in a minute dated September 14, 1872, has placed these questions in a very clear light. The balance of trade is not a mere question of import and export, and of the excess of one over the other. It results from the relative totals of all the amounts expended by each upon the other, whether in payment of produce and manufactures, or for the purchase of shares and public securities, or for the settlement of profits, commissions, or tribute of any kind. Payments made by one country to another, for any purpose whatsoever, have the same effects as payments for direct importations. Thus the general indebtedness of two countries to each other may be balanced, though the one imports far more commodities from the other than it supplies in return. Accounts are never squared or balanced in any one year. Transactions in one year run on to the next, and are not always adjusted in the year to which they belong. For a full comprehension of the way in which Indian trade is balanced, it is, therefore, necessary to take a number of years together.

Sir Richard Temple gives the following figures. The value of merchandise is calculated from the valuations made by the owners at the time, and must be taken with reserve, although the extent of the error from this cause cannot be computed. Between 1835 and 1871 the value of the merchandise exported from India was 1,012,000,000*l.*, and of the imports 583,000,000*l.*, leaving a balance of 429,000,000*l.* unaccounted for. The amount of treasure imported in the same period was 312,000,000*l.*, from which the quantity exported, amounting to 37,000,000*l.*, must be deducted. This leaves a net receipt of treasure, amounting to 275,000,000*l.*, to be deducted from the balance against India, which reduces it to 154,000,000*l.* All payments in England must also be deducted from the balance. These consist of civil and military services and salaries paid in England, pensions, interest of debt and of railway capital, and remittances by troops: all included in what are called Secretary of State's bills. For the amount to be drawn from India to meet these charges, the Secretary of State sells bills in London. The purchasers pay their

money in England, and receive money in return in India. Such remittances operate just as if treasure had been despatched to India; and, consequently, the amount of Secretary of State's bills, amounting between 1835 and 1871 to 113,000,000*l.*, must be deducted from the balance, which reduces it to 41,000,000*l.* India also owes, and has to pay England, large amounts on private account, made by encashing private bills. These amounts cannot be given with any accuracy, but they are made up of Indian securities held in England and in deposit by banks, dividends on joint-stock enterprises, rents from houses, profits from plantations and trade, and private remittances. The total is now placed at 3,500,000*l.* in a year, but it was much less in former years. As a set-off, there is the private capital remitted to India—about 1,000,000*l.* Freight also is an item almost entirely against India, as the shipping is chiefly British. The freightage is about 1,000,000*l.* These items of private accounts and freight, if their amounts could be correctly ascertained, and if the other figures were accurate, would complete the investigation, and show an exact balance of Indian trade.

The phenomena of the trade between India and China are to be explained on the same principles. In 1872–73 the exports from India to China were worth 12,074,347*l.*, of which the opium was worth 10,529,673*l.*, the raw cotton 1,185,684*l.*, and the rice 112,157*l.* But the imports were only worth 1,355,171*l.*, consisting chiefly of raw silk (519,948*l.*), and tea (201,781*l.*). Thus there is an excess of 10,719,176*l.* against India, being more than the whole value of the opium, for which India apparently receives no return whatever direct from China. Here the balance of trade is made partly in treasure, and partly by the transfer of claims on England, which China has for excess produce exported thither. From 1852 to 1871 the exports from China to England were worth, including treasure, 198,000,000*l.* The imports into China from England, also including treasure, were 86,000,000*l.* in the same period. There is, therefore, a balance of 112,000,000*l.* due to China. By this debt due from England to China, the latter country defrays her obligations to India. Between 1852 and 1871 India had a balance against China of 112 millions, which sum must represent the amount which China has settled with India by transferring her claims for excess produce exported to England. For the last few years the debt due by England to China has been decreasing, till in 1870 there was no debt at all. The use of British manufactures by the Chinese has been decreasing fast. In these years China had little or no claims on England to transfer in payment of her debt to India, and could only have paid it by transferring her claims on countries other than England. This circumstance, Sir Richard Temple suggests, may account for the phenomenon in Indian exchange, of there being in England an exchange not favourable to India, though the exports from India to the United Kingdom largely exceed the imports. India failed to obtain the benefit due from the state of her trade with England because of the cessation of the requirements of remittance from England to China. These remittances are largely made up of Secretary of State's bills on India. When, therefore, the need of this remittance fell off, there was less competition for the bills, and consequently less favourable terms for India. This shows the importance of the foreign trade of China to the exchanges of British India.

The shipping which carried the foreign trade of India in 1872–73 consisted of 6,095 vessels entered, with an aggregate of 2,371,529 tons; and 6,371 cleared, representing 2,388,451 tons. The interportal trade was borne by 15,071 vessels. The average tonnage of vessels in the Indian trade continues to increase. The number of vessels which entered the port of Calcutta, in 1872–73, was 1,118, with a tonnage of 992,211 tons, of which 342 were steamers, and there were 161 native craft. The number of British vessels that entered the harbour of Bombay in 1872–73 was 629 (584,815 tons), of foreign vessels, 95 (70,519 tons), and of native craft 5,729. The tonnage of vessels frequenting all the ports of the Madras Presidency was 1,227,880; the most important ports, after Madras, being Cochin, Calicut, and Tutikorin; and then Cocanada, Mangalore, and Tellicherri.

The value of Bombay interportal trade, including exports and imports, exceeds that of any other port of India. It was worth (exclusive of treasure) 6,475,369*l.* for 1872–73; that of Bengal 5,772,185*l.*; of Madras, 3,884,984*l.*; of Burma, 2,234,540*l.*; and of Sind, 2,640,561*l.* But in the foreign trade Bengal takes the lead, its whole trade, exclusive of treasure, being worth above 40 millions, or half the value of the total imports of India, and two-fifths the value of the total exports. The whole foreign trade of Bombay is worth over 30,000,000*l.*; of Madras, over 9,000,000*l.*; of Burma, 5,500,000*l.*; and of Sind, nearly a million.

The exports and imports, exclusive of treasure, were as follows :—

	1872–73. Exports. £	Imports. £
Bengal - - - - -	24,618,538	15,396,189
Bombay - - - - -	19,929,315	10,563,295
Madras - - - - -	6,244,668	3,296,401
Burma - - - - -	3,776,980	1,680,425
Sind - - - - - -	657,994	324,250

The great article of export from India, next to cotton, is rice. For the foreign trade alone the quantity exported during the year 1872–73 was 22,973,797 cwts., worth 5,701,439*l.*, being an increase of six million cwts. over the previous year. Calcutta exported 5,779,594 cwts., but more than half is shipped from Burma. Most of the grain exported from Madras, 77 per cent., or 1,858,177 cwts. out of a total of 2,411,501 cwts., went to Ceylon. The rice trade is flourishing and improving everywhere. The largest quantity, 12,675,005 cwts., goes to Europe. The next largest customers are Ceylon and Mauritius, receiving 2,978,551 cwts. and 2,435,035 cwts. respectively. The Straits carry off 1,752,288 cwts.; 904,048 go to the Persian Gulf; and the remaining 2.228,870 to various other foreign countries.

Cotton vies with rice as an article of export. In 1872–73, a remarkably bad year, the exports amounted to 494,214,447 lbs., worth 14,022,108*l.*, being less by 315,031,640 lbs. than the exports of the previous year. From Bengal the quantity of cotton exported was 79,752,618 lbs., against 164,376,961 lbs. in 1871–72. From Madras the quantity exported was 65,783,567 lbs., against 75,329,127 lbs. in 1871–72; and from Bombay it was 320,204,354 lbs., being the lowest since 1866, and showing a decrease of 32 per cent. since the previous year.

A great quantity of cotton is worked up in India, and the duty on imported piece-goods fosters and encourages the home manufacture. The most important industry in the Bombay Presidency is now the manufacture of cotton, cloth, and yarn. This manufacture has always existed in nearly every village. The cotton is cleaned and spun into thread by all classes of the people, and there are weavers and dyers in every town. Printed goods have also long been manufactured, especially in the large towns of Gujrát, stronger and more durable than European goods. But it is only within the last ten years that steam spinning and weaving mills have been introduced. The first factory was started at Kurla, in 1863. There are 13 steam mills in the town and island of Bombay, besides the Kurla mill, employing 60,000 spindles and 848 looms. There are also one at Broach, one at Súrat, and two at Ahmadabad. The 18 mills now at work employ altogether 4,500 looms, 405,000 spindles, and 10,000 hands, and turn out daily 100,000 lbs. of yarn. The weekly consumption of cotton is 1,500 bales, 6½ per cent. of the average cotton crop, and this is likely to increase largely. Many cotton printers are settled in Bombay, and much of the cloth manufactured in the mills is dyed in their vicinity, and exported to the Deccan and the Kakan for the use of the Mahommedan community. In Bengal there are two well established cotton mills at Boureah and Ghoosrey, suburbs of Calcutta, for the manufacture of mule twist. The pressing and cleaning of cotton for exportation also gives rise to a thriving branch of the cotton industry. In Bombay there are 28 pressing and ginning companies, besides steam presses in other parts of the Presidency, in Berar, Madras, and at Mirzapur. There are also many cotton manufactories in the Punjab, and especially in the Central Provinces, where there is a large demand for cotton for home consumption, which checks the export materially. In Mysore cotton cloths are woven in nearly every district, and in Madras there is actually a considerable export and interportal trade in piece-goods and twists. Yet the amount of imported cotton goods is enormous. In 1872–73, there were 14,545,772*l.* worth of cotton piece-goods imported into India, besides cotton-thread, twist, and yarn.

In 1863, when the American war gave an extraordinary impetus to the cotton trade, and there was a ready sale for every bale that could be shipped, there was much adulteration. On the voyages from Kúmta to Bombay, the crews of the pattámars used to work their way into the bales, pull out large handfuls of cotton, and fill up the spaces with dirt. These and similar practices gave rise to the Cotton Frauds Act (IX. of 1863), which provided that there should be inspectors, whose duty it would be to inspect the bales before they were pressed, and see that there was no adulteration; the expenses of the establishment to be defrayed by a tax of 3 annas on each bale. The Act has now been in force for 10 years, and during 1872–73 44 cases were brought to trial under its provisions, out of which 24 con-

victions were obtained. There is, however, a good deal of difference of opinion as to the policy of continuing or repealing the Cotton Frauds Act. Those who are in favour of its continuance contend that, although convictions are few, the deterrent effects of the Act are very great. On the other hand, it is urged by the Bombay Chamber of Commerce, and those who advocate its repeal, that it was passed at a time when there were extraordinary temptations to adulterate owing to the high prices, that the causes which gave rise to it have ceased to exist, that it is utterly useless for putting down fraud, and that the money spent on the establishment is wasted. The subject is now under the consideration of the Bombay Government, and, meanwhile, the tax imposed under the provisions of the Act was, in August, 1872, reduced from 3 to 2 annas on each bale.

The local cotton mills have almost annihilated the English trade in low-class cotton goods, grey shirtings and T cloths, and yarns. The productions of the mills find a ready sale at paying prices, and India gains by saving the expense of sending its raw material to Europe, and having it returned in a manufactured form. Bombay made cloth has the advantage of freedom from duty, and this has been assigned as the cause of the success of Indian cotton manufactures. It may be that the duty largely aided the mills in their infancy, and that it may have some share in the fact that the importation of English piece goods is decreasing, while the country manufactures are largely increasing and competing with the English goods. But even this is now doubtful, for the returns from Aden and Sind show that Bombay made cloth can, on equal terms, compete successfully with the produce of English mills.

There may be another cause, namely, the inferiority of the piece-goods imported from Manchester, and their rapid deterioration. Complaints of this deterioration have been made several times, and the Manchester Chamber of Commerce represented that it was the result of damage by water. In December, 1872, the Shanghai Chamber of Commerce reported that the damage was principally in grey shirtings and T cloths, the outer packages of which showed no signs whatever of contact with water or undue dampness of any kind. The losses from this cause have been very great, and the damage was prevalent on the rise of the price of cotton during the American war. The cloth was not only discoloured, but often rotten. When prices fell the deteriorated cloths became less common. But during the last two years they have presented themselves in a still more aggravated form. In 1872 the evil was very general, and 75 per cent. of the entire stock of these cloths was unsaleable at Shanghai as sound goods. The Chamber is fully convinced that the cause is inherent in the cloth itself, from the use of size of a deleterious character to increase the weight. The evil becomes prominent when the value of cloth is unduly low compared with the cost of cotton. The Bombay Chamber of Commerce fully concurs in this view; and the Bengal Chamber has also protested against the various improper methods, and the use of deleterious compounds for increasing the weight of cloth. Finally, in April, 1873, a Committee appointed by the Manchester Chamber of Commerce at last condemned the practices of introducing moisture into the cloth, and of excessive sizing for the object of producing weight.

The present very prosperous state of the native cotton manufacturing industry is due to various causes, but not the least important among them are the inferior character of the Manchester goods, and the excellence and durability of the cloths manufactured in India.

The most valuable special article of export from Calcutta, next to cotton, opium, and rice, is jute. The quantity of jute exported in 1828 was 364 cwt., worth 62*l*., and the extraordinary increase that has since taken place is due solely to the energy of the ryots of Bengal. They found it profitable, engaged in it with alacrity, and created the trade. The large import of cheap Russian flax into this country at first kept down the demand for jute, but this source of supply was destroyed when the Russian war broke out in 1854, and the demand for jute became brisk. The ryots seized the opportunity without any prompting or assistance. From 1858 to 1863, the average exportation of jute from Calcutta was 967,724 cwts. From 1863 to 1868 it had risen to 2,628,110 cwts. The quantity of raw jute exported in 1872-73 was 7,080,912 cwts., worth 4,142,547*l*., an increase of nearly a million cwts. as compared with the previous year. Thus the ryots have created and extended an industry in 45 years to a value of more than 4¼ millions, without any official encouragement or aid whatever. In 1872 there were 3,955,455 cwts. of jute imported into the United Kingdom from India; and 69,000 cwts. from other countries. Of this quantity 3,200,455 cwts. are used in Great Britain—almost entirely in Dundee. The remaining 755,000 are re-exported. France takes 148,876 cwts. direct from

Calcutta, and 550,500 cwts. from England. Trieste takes 9,000 cwts. direct from India. Holland receives 5,357 cwts. from India, and 58,610 cwts. from England. In 1872, Germany took 77,831, Belgium 31,192, Spain 20,768, and other countries 16,176 cwts. by re-exportation from England. Large power mills have also been established for spinning and weaving the fibre under European management in India. At the Barnagpúr mills, near Calcutta, there were 17 European overseers, 4,700 natives, and the mills work up 16,000 tons of jute in a year. There are also jute mills at Fort Gloster, down the Hugli, at Budge-budge, at Rishra, at Chapdani, and two at Serampúr. Women and boys are employed in the spinning, winding, and sewing, and men in weaving; the rates of wages being for men 11 annas a day, for women 5 annas 5 pie, and for boys 3 annas 5 pie. The work is practically confined to making gunny bags and cloth, and the total value of the gunny bags, cloths, twine, and rope exported in 1872-73 was 835,911*l.* The success of these jute mills has been very great, and there are also many jute screw houses and warehouses.

It is remarkable how various industries, carried on at vast distances, act upon each other. The growth of jute in Bengal led to its manufacture in Dundee, and this caused the revival of the whale fishery in Baffin's Bay. In 1872 the quantity of jute imported direct into Dundee was 1,828,614 cwts., and the bulk of the whale oil is required by the jute manufacturers of Dundee and its neighbourhood. Thus the port of Dundee has now become the centre of the whale fishing trade, and cargoes of oil from the Arctic Regions may be seen discharging alongside cargoes of jute from Calcutta, both being essential to the prosperity of this industry. The Dundee Chamber of Commerce has represented that an Arctic Expedition is desirable, in order that new haunts of oil-bearing animals may be explored; and if an Arctic Expedition will benefit the jute manufacturers of Scotland, it is equally important to thousands of industrious Bengal ryots, to whom jute cultivation gives employment and the means of subsistence.

There has been a great increase in the production of tea, of which 17,187,328 lbs. was exported from India in 1871-72, and 17,789,911 lbs. in 1872-73, worth 1,577,691*l.* In 1872-73 the export of indigo amounted to something more than 115,312 cwts., worth 3,426,824*l.*; and of sugar to 630,938, worth 492,743*l.* The increase in the produce of sugar has been very marked, it has indeed nearly doubled. India-rubber, from the *Ficus elastica* of Assam, is also a product belonging to the region whose commercial centre is Calcutta. In 1872-73 there was a large increase in the quantity exported, namely, 21,571 cwts., worth 143,760*l.*, against 15,628 cwts. in 1871-72. Some India-rubber also comes down the Irawadi from the same region, and specimens have recently been submitted to the Bengal Chamber of Commerce from the Shan States, which were not marketable in the state they were sent, but which, if properly prepared, would be worth 59 rupees per maund at Calcutta.

The special product of the Madras Presidency, besides cotton, is coffee, the great mass of which is brought down the ghâts from the hill districts of Mysore, Curg, Wynaad, and the Nilgiris, to be shipped from the Malabar ports. Some is also shipped in South Kanara and at Tutikorin, as well as from a new port in Travancor. The whole quantity exported, in 1872-73, was 41,462,705, worth 1,128,549*l.*, besides that exported from the Travancor estates, the amount of which is annually increasing. This is a considerable decrease compared with 1871-72, but it is merely due to the unusually large exportations in the latter year. In like manner the importation of coffee into Bombay was unusually high in 1871-72, and consequently there was a decrease of nearly six lakhs in the importations of the present year. The Travancor coffee district is on the Asambhu hills in the extreme south of India, near Cape Comorin. Colachul is the port which was first occupied as a station for the preparation of coffee in 1870. It is 25 miles from the foot of the Asambhu hills, and the coffee is brought from the foot of the ghaut in carts. The estates cover 9,382 acres, of which 5,105 are planted. In 1872 about 500 tons of coffee were exported from Colachul, which has been doubled in 1873. The first ship called there in March, 1871, and since that date other ships have loaded at the port; but a survey is urgently needed.

The trade of the coast of Malabar has a special interest of its own; historical, because this was the part of India which Vasco da Gama first brought into direct commercial relations with Europe; economical, because it is in some degree special and isolated. In 1872-73 the total value of the imports into Malabar was 1,442,981*l.*; the largest item was rice, of which, owing to bad harvests, 1,102,016 cwts. were imported. Of cotton goods came 11,753,593 yards, of gunny bags 310,671. The

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value of the Malabar exports was 2,090,668*l.* The most valuable produce is that from the cocoa-nut trees. In 1872-73 the value of the export of cocoa-nut oil was 356,187*l.*, and of the coir yarn and rope 176,482*l.* Next comes the pepper, of which 77,617 cwts. were exported, worth 116,438*l.*; and 24,235 cwts. of ginger, worth 27,889*l.*

There is an increasing trade from India in hides and skins. In 1872-73 the export rose to 22,989,615, worth 2,921,416*l.*, an increase of nearly three million hides compared with the previous year. Wool is chiefly exported from Bombay and Karáchi. There was a falling off of three million lbs., the quantity in 1872-73 being 20,394,718 lbs., worth 838,042*l.* Saltpetre is fast recovering its former rank as an important article of export. The trade was much greater last year than in any previous year since the close of the American war. The exportation has been free since 1867. In 1872-73 there were 518,982 cwts. of saltpetre exported, worth 536,314*l.* Of teak timber 50,443 tons were exported, worth 356,386*l.*, a great improvement on the previous year. In British Burma, besides rice and timber, the great export is *cutch*, manufactured in large quantities for export to Europe, from the *Acacia catechu*, chiefly in the Prom district.

Chinchona bark, yielding quinine and other febrifuge alkaloids, will soon become as important an article of export as it is one of the most valuable products of India for home use. The exports of bark from the Nilgiri Hills, on the part of the Government, during 1872–73, the first regular year of export, amounted to over 20,000 lbs., which realised 4,000*l.* in the London market. About the same quantity will be exported in 1873–74, but after that year the trade will rapidly increase. At the same time the East India and Ceylon Chinchona barks, from private plantations, appear regularly in the monthly particulars of bark sales in the London market, selling at from 10*d.* to 4*s.* per pound; very good average prices as compared with those obtained by the South American barks.

The chief present interest in the sea-borne traffic of India lies in the development of the transport of merchandise by the Suez Canal. At present, out of the total value of the trade of India with Europe and America, about 40 millions, or 60 per cent., passes annually through the Suez Canal. The number of Suez Canal steamers that arrived at Calcutta in 1872–73 was 91, against 89 in 1871–72, and at Bombay 122 as against 88 in the previous year. A trade has thus sprung up with the countries bordering on the Mediterranean. The export trade is worth 1,539,240*l.*, but India receives only 186,573*l.* worth of imports in return. The Russians, during two previous years, had attempted to force a trade between Odessa and India by the canal, which has now been abandoned. Two steamers, subsidised by the Russian Government, sailed from Odessa in March, 1871, with cargoes of coal, one for Bombay, the other for China. They returned, the former with rice, cotton, and coffee, the latter with tea, in May and June. In 1872 similar voyages were undertaken, but they were not successful, and in 1873 they were given up. There has also been a great decline in the exports to Genoa. On the other hand, Austria, Syria, and Sicily appear for the first time, and the decrease of trade with Genoa is compensated by an increase with other ports of Italy, and with Trieste. The trade of the free port of Aden is also thriving. It amounts to 1,407,102*l.* of imports, and 834,087*l.* of exports, chiefly coffee, raw and manufactured cotton, grain, and ivory. The coffee trade was worth 138,496*l.* Much of it comes to Aden from Mocha and Hodaida in native boats, because there is no tonnage at those ports.

The trade of the East Coast of Africa is, to a great extent, in the hands of natives of India; and there is a considerable traffic with the ports of Kách and Bombay, although the facilities for direct communication with Europe are tending to lessen it in future years. There are about 4,000 Muslims and Hindus of British India established at Zanzibar and other East African ports. The Muslims are of the Khoja, Bohra, and Memon sects. The two former are Shîa'ahs, the latter Sunnahs. The Khojas settled in Zanzibar in about the middle of the 17th century, and are chiefly from Kách and Jamnagar. They number 535 families, governed by a council of five elders, and they annually remit about 6,000*l.* for religious purposes to Agha Khan, the head of their sect in India.* There are 2,000 Khojahs in Zanzibar, 137 in Bagamoyo, and a few in Pemba, Quiloa, and Dar Salam. The Bohras came from

* The Khojahs are converts to Islam from the Hindus of Gujrát, Katiwár, and Kách, taking their name from one of their early teachers. They number 6,000 in Bombay; 5,000 in Gujarat; 20,000 in Katiwár, and 3,000 in Kách. The present head of the sect is Agha Khan Muhammad Husain Husaini, a son-in-law of the late Fat-h 'Aly Shâh of Persia, and a descendant of Imâm Hásan es-Sabbâh, the founder of the sect of the Assassins in 1090 A.D. and known to the Crusaders as the "Old Man of the Mountain."

Surat, and settled on the north-west coast of Madagascar, for trading purposes, at about the same time that the Khojahs established themselves at Zanzibar. The Bohras next formed trading stations at Pemba and Lamu. During the last fifty years they have ceased to come from Súrat and Rájkot to the African coast, but there has been a great immigration from Kách. The Bohra community is guided by a Mulla, and has no council such as regulates the affairs of the Khojahs. There are 250 families of Bohras in Zanzibar, 142 at Mombas, 51 at Pemba, 42 at Lamu, and 21 at Malinda. Of the Hindus there are 474 Banians belonging to the Bhettia and Wania sects of the Maharajahs from Kách. They are prevented by their customs from bringing their wives and children to so distant a port as Zanzibar. These natives of India hold the local trade in their hands, and also do a very considerable outside trade both to Madagascar and Mozambique, and to England direct. Formerly Bombay was the *entrepôt* of East African products. These are now shipped direct to Europe, unless used as remittances to Bombay, and in this form they will decrease, and be replaced by the usual operations of banks. So that the Kách and Bombay trade has greatly fallen off, and will continue to do so. The chief trade between India and the East African ports is in cotton cloths. In 1871 the whole value of the trade between Kách and Zanzibar was $281,660, and between ports of British India and Zanzibar $396,889. Of this $264,400 worth of cotton cloth came from Kách, and $344,550 from British Indian ports: the whole value of cotton cloths imported into Zanzibar in that year amounting to $1,345,850. The Indian merchants also carry on considerable trade with the city of Mozambique; ten Indian houses doing business there to the extent of 60,000*l.* a year. In 1871–72 the whole import trade of Zanzibar was valued at about 420,000*l.*; and the export trade at nearly 500,000*l.*, carried by 58 merchant ships. Of the export trade 105,000*l.* belonged to Zanzibar island, consisting chiefly of cloves and cocoa nuts.

In addition to the sea-borne commerce of India, there is the land traffic through the passes of the Himalayas which lead from Sind and the Punjab to the lofty plateaux of Afghanistan, Turkistan, and Tibet. In 1862 Mr. Davies estimated the trade beyond the mountain frontier at 1,000,000*l.*, and it has considerably increased during the 12 years that have since elapsed.

The trade of the Lohani merchants (called Povindahs or runners), who are the channels of communication between India and Central Asia, is a very old one. Only militant merchants of this description could ever have made a profit out of a commerce which had to traverse difficult mountain ranges, through tribes of savage robbers, and the countries between them seamed with the customs lines of greedy, short-sighted chiefs. Starting from Bokhara with his merchandise, the Lohani would be called upon first at Karshi for the dues claimed by the Tora or Prince governing there, then for customs dues on the Oxus, octroi at Balkh, customs at Khulm, at Duab, at Kamard, at Bamîan, at Kabul, and so on to the point where he reached the British frontier. They are the victims of most unequal and heavy exactions at the hands of the officials of the Amir of Afghanistan. From among the imports to Hindostan, they have to pay for camel loads of assafœtida and of walnuts, worth respectively 130 and 16 rupees, equally 18 rupees. Camel loads of pistachios and pomegranates, worth 120 and 30 rupees, pay 32 and 18 rupees. Among exports from India, English cotton goods, worth 3,000 rupees the camel load, pay 74 rupees; indigo, valued at 400, pays 72 rupees; tea, worth 800 rupees the load, pays 98 rupees duty. Besides these demands of the governments, there are the exactions of the officials and petty chiefs at every stage on the road, and the black mail of the various tribes through which he passes; the Turkmen on the Oxus, the Uzbeg robbers of Muzar Shurif, the Tartars of the Dasht Safid, the Hazaras of Syghan and Bisût, the Wurdaks between Kabul and Ghazni, the Hotuks between Ghazni and Kutawaz, the Sulaiman Khyl of Kutawaz, and the Waziris between them and the Indus valley. But the Povindahs banded together in large caravans to resist exactions that would render their trade impossible. They defied the robber tribes here, compounded with them there, avoided or slipped past in the night some customs post of weaker chiefs, whose pursuing emissaries they could defy, and bribed officials at others to shut their eyes to the value of the richer bales. And so, sorely harassed at every step, losing men, horses, camels, bales of merchandise here and there on their way, bribing, cajoling, bullying, defying, fighting, twice every year did the caravans of these hardy traders, seeking their precarious gains, battle their desperate way through the deserts of Bokhara, the defiles of the Paropamisus, the Ghilji plateau, and the passes of the Sulaiman range, across the Indus to the Punjab. The Kafilas have to pass the Sulaiman mountains in one great company for mutual protection. They

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throw out advance and rear guards, and occupy difficult portions of the road in force, while the camels pass. At night the Waziris often make attacks, and plunder in spite of sentries and pickets. Throughout the day these robbers hang on the skirts of the Kafilas, along the hill tops and in the ravines, waiting for opportunities to make a dash on a camel or two. Much of this is now changed for the better, with the natural result of a vast development of the trade. There now exists one government from the Oxus to the Trans-Indus plains, for the first time since 1780, when the empire of Ahmad Shah began to fall to pieces under his son Tîmûr. At the same time the plains of India have all come under one Government, and once across the Indus the merchant finds himself in a state of security the most absolute. If the rest of the route was made safe, and the duties in Afghanistan were fixed at a moderate *ad valorem* rate, the Povindah merchants might make four trips in the year instead of one, because they could proceed independently instead of being obliged to proceed in strong caravans, and the value of the trade would assume much larger proportions. The Povindahs number some 12,000 fighting men, with 60,000 camels, and their trade by the Gomul Pass is worth 60,000*l*., in spite of the serious disadvantages with which they have to contend. Every year they lose a hundred or more men, and at least two per cent. of the camels, besides some hundred loads, at the hands of Waziri and Sulaiman Khyl tribes. The Kafilas move towards the plains in October, leaving their families at the foot of the hills. The largest proceed to Multan, and thence find their way to the chief marts of India. They bring down the wool of Kirman to Amritsar and Ludiana, which places do not attempt to rival Kashmir in the production of the higher descriptions of shawls, but prefer to produce the coarser and cheaper article most in demand. In 1851–52 the import of Kirman and Turkistan pashmina wool into Amritsar amounted to 1,250 maunds of the last and 100 of the first. Ten years later there were 1,000 of the first and 500 of the second. Now Kirman wool is one of the most important Povindah imports by the Gomul and Gwalezri routes. The Povindahs also import raw silks, gold and silver wire, dried fruits and almonds of Kabul, horses and ponies. They return with English cotton cloth of every kind, crockery and metal goods, broadcloth, brocades, indigo, spices, tea, carpets, lungis, chintzes, gold coins, drugs, pearls, gold lace, and the gold thread of Delhi. Before the interference of the Russians, English cloth and tea was exported from Bokhara to Samarkand, Khokand, and Tashkend, but now the Russians have prohibited the trade in order to establish a monopoly.

The commercial traffic between British India and Eastern Turkistan, across the Himalayas, only dates from 1867, when Dr. Cayley was first sent as resident to Ladak. In 1870 the Maharaja of Kashmir was induced to abolish transit dues on goods passing from India to Central Asia, the negotiations being conducted on the part of the English Government by Captain Grey. The equivalent given was the remission of all Indian sea-board duties on trade between the Maharaja's territories and Her Majesty's dominions. One item of trade for which there is a great demand in Europe is borax. It is procurable at Rudok, in Changthán, at ten annas per maund, of such quality that only about a quarter is lost in refining, whereas that obtained at Puga, the Maharaja's monopoly, loses one-half. The former, however, has now to be brought on sheep to Rampur, on the Satlej, at the rate of two miles a day, so that the price in the plains becomes six to seven rupees a maund raw, and 15 rupees per maund refined; and it is exported at 25 rupees a maund at the sea-board. Notwithstanding this profit the export is small, owing to the difficulties under which the supply now labours. The consequence of the abolition of transit duties was that by 1871 the traffic had increased seven-fold; in that year it amounted to 124,177*l*. The Yarkandi merchants used to meet the Indians from the Punjab at Leh, but now the Amritsar traders find that the Yarkandis are coming down in yearly increasing numbers to the Punjab to attend the Palampur fair in Kangra, so they do not trouble themselves to undertake the weary journey up to frozen Ladak. It is to be regretted that nearly 50 per cent. of the total imports from Turkistan consists of bhang. But next in importance comes gold dust. £8,590 worth was bought in 1871, and the supply is likely to increase, as a new goldfield has been discovered near Khotan. Next comes pashmina, or shawl wool, most of which goes to Kashmir, hardy baggage ponies, silver ingots, carpets, felt sheets, and raw silk. The latter article is capable of great development. The Yarkandis take back cotton piece-goods, for which there is an immense demand, Kashmir shawls, sugar, Kangra tea, gold brocades of Benares (kincobs), and spices. Mr. Shaw has recently called the attention of the manufacturers of Manchester and Bradford to the importance of

developing this trade. Kashgar is only 390 miles from Jhilam, in the Punjab; and it is demonstrable that English merchants could convey their goods to Turkistan at a cheaper rate than the Russians, and that they could, therefore, undersell them. The cost of transport of 1 cwt. of cotton piece-goods from Moscow to Eastern Turkistan is 4*l.* 7s. 8*d.*; the same from England is 3*l.* 17*s.* 5*d.* All that is necessary is to send suitable goods to the markets, and to study carefully the tastes of the buyers. The goods brought in exchange are admirably suited for a long and difficult mountain route, being of small bulk and great value, raw silk and gold dust. A great development of this interesting trade may be expected in the near future. In 1872-73 the total trade with Turkistan was worth 158,480*l.* The traffic has increased, especially the tea exports. There has also been a development of the through traffic from the Punjab by mules. A troop of 170 went from Jalandhar to Ladak, which at once obtained return freights to carry borax to Kulu, so that the venture was very successful to the owners of the mules, and will doubtless be followed by others. The Treaty of Commerce between the British Government and the Amír Muhammad Yakub Khan, ruler of Kashgar and Yarkand, was signed on February 2, 1874. It provides for the passage of merchants from one state to the other, and that there shall be no duty on goods exceeding 2½ per cent. *ad valorem.*

In forwarding the treaty of commerce which he concluded with the Amír of Kashgar last February, Mr. Forsyth reported that the bazars in the towns of Kashgar and Yarkand were well filled and the trade brisk, but one great drawback to trade at present is the want of a proper currency, and another is the difficulty of the road over the Himalayas. It is probable that mules will supply the carriage, aided by Yarkandi ponies. Mr. Forsyth has made as complete a collection as possible of samples and specimens of goods in use in Eastern Turkistan which are capable of being manufactured profitably in India or England, and he has given information respecting the packing of goods and the means of transport. It seems to be clear now that English goods can be conveyed at a cheaper rate through India and over the Karakorum pass than through Russia to Kashgar.

A fair was established at Palampur in Kangra in 1867, with a view to develope the local trade, which promised to be capable of great expansion, as well as to open out commercial relations with Central Asia. Palampur is quite a recently created village, conveniently situated for the Punjab merchants, and 317 miles from Leh in Ladak. The first fair was experimental, but the returns showed that about two lakhs of rupees worth of goods changed hands in the few days the fair lasted, and there was a large demand for woollen fabrics. There were 30,000 persons at the first fair, among them several merchants from Central Asia, exchanging ponies, woollen blankets, Pashm shawl wool, borax, jade cups, gold, and musk, for piece goods, brass vessels, English cloth, kincobs, boots, shoes, and ornaments. In 1870 the number of persons attending the Palampur fair increased to 30,000, but, unluckily, an early fall of snow stopped most of the traders who had not got beyond Leh. English piece goods, metal, and vessels were in very great demand. The fifth Palampur fair was held in November, 1871, when the Earl and Countess of Mayo were present. Traders came from Kangra, Jalandhar, and Amritsar, but no Yarkandi merchants were present. The value of goods exchanged amounted to 32,450*l.* Business fell off at the fair of 1873, and the attendance was smaller than usual, chiefly consisting of cloth merchants from Amritsar and Jalandhar, and traders in copper and brass vessels from Ambalah. Only two Yarkandi merchants appeared, who brought a few ponies, a good supply of carpets, numdas, and jade ornaments. The value of goods sold only amounted to 4,000*l.*, of which 2,000*l.* was for English piece-goods.

In the Eastern Himalayas there are trade routes from India to Tibet by Nepal, by Sikkim, and by the country of the Tawang Bhutias. The prohibition of trade between India and Tibet is solely due to orders from Peking. The local officers in Tibet would, it is said, gladly facilitate a direct trade; and even now there is considerable traffic through Sikkim, carried on by Tibetan, Lepcha, and Bhutea merchants. The Sikkim Rajah is willing to facilitate this trade, and Mr. Edgar, the Commissioner at Darjiling, will this year visit Sikkim, learn the actual state and prospects of trade with Tibet, and report upon the best line of road. On the north and east of Sikkim there are a succession of routes, leading into Tibet by seven passes through the southerly bend of the great range which embraces the Chumbi valley. The most southerly is by Jelepla, 45 or 50 miles from Tumlung, the Sikkim Raja's capital, which is 13,000 feet above the sea. The two next, to the north, are the passes of Guatiula and Yakla, the latter 14,000 feet high. These are rarely interrupted by snow for many days, and form the easiest way to the Phari valley. Next, to the north, is the Chola

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Pass, 15,000 feet high, which is the direct route from Tumlung, the capital of Sikkim, to Chumbi. Then comes the Tankrala Pass, 16,083 feet high, the most snowy pass in Sikkim, difficult of access, and unsuited for traffic. The Donkiala pass is at the head of the Lachung, the eastern branch of the Tísta river, and is at the north-east corner of Sikkim, under the great peak of Donkia, and above the Tibetan lake of Cholamu. It is 18,466 feet above the sea. Lastly, the Kongralama Pass, 15,745 feet high, is at the head of the Lachin, the western branch of the Tísta. The Donkiala and Kongralama passes are used by the Tibetans, who bring cattle to graze in Sikkim, and by the inhabitants of the Lachin-Lachung valley, who, twice a year, carry wood into Tibet, and bring back loads of salt in return. The construction of a good road is quite practicable, but it would be expensive. The Tísta valley may be ascended to a height of 4,000 feet above the sea in a distance of fifty miles by an ascent of 1 in 50 to 1 in 100. But then there is a further ascent of 900 feet to the pass, and a slight descent on the other side to the Chumbi valley.

In 1871 a native pundit, trained as an explorer by Major Montgomerie, made his way from Darjiling, through Sikkim, into Great Tibet, by the Wallangchoon pass mentioned by Dr Hooker, and called the Tipta-la by the pundit; and thence to Nepal. He describes the Tipta-la road as difficult, and the ground north of the pass as very elevated and barren. The first place he reached beyond the pass was a large standing Bhutia encampment called Tashirak, on the Arun river, about 1,500 feet above the sea. Marching northwards he crossed the Nila-la pass, and obtained a passport to Shigatze. He was now fairly in Tibet, reaching the village of Lamadong on the 4th of September. This, and other places in this part of the pundit's route, are on the Arun, a tributary of the Kosi, one of the chief rivers of Nepal. He next came to the Chonto Dong lake, a fine sheet of water about 20 miles long by 16, at an elevation of 14,700 feet above the sea. The water is excellent, although the lake has no outlet. It forms a portion of the boundary between Sikkim and Tibet. Thence crossing the Gyaling range of mountains, by a pass covered with snow, he reached Shigatze on the 17th of September. From Shigatze he made his way south-westwards towards the Dingri-maidán, and reached the great Shakia monastery, situated on a tributary of the Sang-po, about 13,900 feet above the sea. Crossing the pass of Dong-la he again came into the region divided by the Arun river, on the banks of the Dingri-chu, the great western branch of the Arun. Following its course, he arrived at Dingri-maidán, a town situated on a large open plain. From this place there is a good road along the Dingri-chu valley to Jong-ka-jong, and thence, by Kirong, to Katmandu. Officials are the only persons allowed to travel by it, all others taking the route by Nilam. This leads over a snowy pass called Thung-lung la, 18,460 feet above the sea, to the town of Nilam, a place with 250 houses, ruled by two jongpons appointed by the Tibetan Government. North of the passes the country is tolerably level, but to the south the ground is very rugged and broken. That below the Thung-lung-la pass is, however, much more difficult than the Wallangchoon route. From Nilam the road follows the course of the Bhotia-kosi into Nepal, which it crosses 15 times by means of three iron suspension and eleven wooden bridges. In one place there is a chasm which is so perpendicular that the path is supported by bars of iron and slabs of stone stretching from peg to peg and covered with earth, for a third of a mile. The pundit's route, 844 miles long, took the explorer completely round Mount Everest; and his survey gives a general idea of the direction of the mountain drainage between the Himalayan water-parting north-west of Kirong, and the point where Turner crossed it near Chumalari, up to the Sang-po. So little is known of the trade routes from India to Tibet, that the account of the pundit's journey, as given by Major Montgomerie, is possessed of special interest.

There is another route to Tibet through Bhutan to Dewangiri, a post on the frontier of Kamrúp, which now belongs to the British, and is a centre of trade. A more promising road, still further east, leads from the Assam district of Durrung, through Tawang, the Bhutea Rajas of which are very friendly to the English, and independent of the truculent rulers of Bhutan proper. There is a great fair twice a year in connection with this route, at Udelgiri.

The Tibetans are eminently a commercial people, and it is stated that every person in authority, including even the Chief Lamas of the monasteries, keeps an agent and carries on trade on his own account. Besides this, a large number of Mussulman traders from Kashmir are located in the capital. The inhospitable nature of the country, which produces few articles that are required by the rest of the world, makes bullion an important article of export, and there is no doubt that with a more careful *exploitation* of the mines of silver and gold which abound in Tibet, commer-

cial transactions would assume larger proportions. Silver especially seems to be frequent even near Lhassa, but the authorities prohibit the working of the mines, it is said from a superstition that it would bring impoverishment into the country, and cause the men to degenerate. There is no prohibition against working the gold mines; and those of Thok Jalung in 32° 30′ N. latitude, north of Kailas, and under the still loftier peaks of Aling Gangri, are said to be especially productive.

The commerce of Tibet with China is carried on almost entirely along the great road between Tatsianlu and Lhassa. The Chinese import into Tibet tea, cotton fabrics, thread, porcelains, and Yunan ponies, and receive from Tibet silver, salt, blankets, and other woollen goods, furs, drugs, and musk. Brick tea is the especial article of import from this side. It is made mostly in the neighbourhood of Ya-tsow in Szechuan from a hedgerow tree fifteen feet high, with a large and coarse leaf. The packet of four bricks (weighing 5 lbs. each) is bought at Tatsien-lu for about six and fourpence; it sells at Lhassa for £1 4*s*. to £1 8*s*., and at a much greater sum in the districts which lie off the grand road. It is clear, therefore, that our Darjiling planters could supply Lhassa with tea which would undersell the Chinese tea at a very considerable profit, and could make a still larger profit by supplying the country which lies between Lhassa and the frontier of Sikkim. The better teas are seldom imported, and they cost about two rupees a pound at Lhassa. M. Desgodins, one of the missionaries settled there, calculates the annual supply of tea at about six millions of pounds, producing not less than an income of £300,000. Chinese cottons are largely imported into Eastern Tibet, but at Lhassa their place is supplied by Indian goods. Silks of good striking colours sell at about their weight in silver, and are generally brought from the north of China through the Koko-Nor country.

China imports from Tibet a large quantity of silver, including great numbers of English rupees melted down into ignots, and in their original shapes. Some of this finds its way through Ladak, but a large quantity passes into Tibet from Assam, by the Tawang route, as the Tibetans who come down to our frontier fairs for trade generally take money in exchange for their goods. The inhabitants of the mountainous country of Szechuen clothe themselves to a great extent in Tibetan blankets. Tibetan musk is much esteemed in China, and there is a great demand for it, but it reaches the sea-coast in a very adulterated state; the best musk is said to be that produced in the Mishmi country, and this trade, at least, ought to come into our own hands. Salt is abundant in all parts of Tibet, and is produced by solar evaporation in shallow pits. Tibet supplies part of Szechuen, the whole of Yunan, and all the wild tribes along the Lu-tse-kiang and in the north of Burma.

Of the trade with the north we know very little. The Pandit states that from Jelung in Tartary are brought gold lace, silks, precious gems, carpets of a superior manufacture, horse saddles, horses, and a very large kind of *dumba* sheep.

Between Tibet and India there is a considerable trade through Kashmir and Ladakh; some also passes through Nepal and Bhutan, especially Tawang, to the east, where Tibetan territory actually marches with our frontiers. English woollen cloths are much sought after in Tibet, but they have apparently to contend with importations from Russia. M. Desgodins saw numerous packets on their way to the salt works wrapped in wax-cloths bearing the name of a Halifax maker, and he says they appear made expressly for Tibet, where they sell well, though the quality is but mediocre. The people are used to European sizes, and the cost is 20 to 40 francs a square piece of the whole breadth. Scarlet is the favourite colour; green and violet are not so much in demand; a golden yellow would fetch a good price. The scarlet cloth is used for shawls, dresses, borders of carpets, and linings for boots and saddles. Flowered calicos, both Indian and European, are also much used for lining walls. The missionaries frequently found tin-plates evidently of English manufacture. Mr. Edgar reports that the demand for indigo is very great, and the profit on it is greater than that on any other import, varying from 50 to 100 per cent. on the cost of importing the article. This is accounted for by an alleged difficulty in getting it in small quantities from the producers, which creates a practical monopoly in favour of traders with what is for Tibet a large capital, while the use of the dye is universal in the country. Corals also form a large item of the Indian imports; the preference is for round grains pierced, or oval grains with the ends truncated, and pierced through the length; a piece as large as a pea fetches its weight in gold, and the price augments with the size; the darkest colours are the most esteemed. Turquoises and other precious stones, and pearls, are much imported. Rice is mainly imported for the use of the Chinese residents.

The chief exports from Tibet by the Nepal and Ladakh routes are blankets, musk,

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yaks' tails, borax, ponies, gold and silver. The Kashmir merchants almost always pay in bullion for the articles imported by them, and much of the silver is that which has entered Tibet by the Tawang route. Tea is brought into Darjiling from Tibet for the use of the natives—a fact which does not tell for the enterprise of our planters. Tibetan salt also is sold in the market at Rs. 2 a maund less than the price of sea-borne salt; but the demand will probably cease with the opening of the railway. Coarse blankets command a good sale in Darjiling, and musk, chowries, and silk piece-goods also enter our frontier. If a good frontier road were opened through Sikkim, Mr. Edgar believes that large quantities of cows and sheep, *ghí* and wool, the real wealth of Tibet, would find their way into India*.

The most easterly great prospective trade route is that from Sudiya, through the country of the Mishmis, and the unknown region beyond, to Batang, and the Chinese province of Sze-chuen. An annual fair is held at Sudiya, near the north-eastern frontier of Assam, which is frequented by the Mishmis, bringing caoutchouc, wax, skins, and other forest products from beyond the frontier, and by people of the Abor, Miri, Khampti, and Singpu tribes. The fair was held on the 10th of February, 1872. The Chulikota Mishmis, who had not been allowed to come for some years as a punishment for former raids, were permitted to attend; and about a thousand came, bartering their forest produce for cloth, brass vessels, and opium. The Miris and Khamptis brought 2,570*l.* worth of ivory. The fair is tending more and more to cement friendly feelings with the hill people, which is extremely important, as the forerunner of future direct commercial intercourse between Assam and the western provinces of China. The total value of the forest products brought to the Sudiya fair is about 3,000*l.*

As the largest portion of the products of India is consumed in the country, the internal trade is even more important than that with foreign countries, and the condition of the people may, to some extent, be shown by the character of the traffic between province and province. The materials, however, for such an examination, are very incomplete. In the Punjab the value of the external trade, in 1872–73, was 5,024,883*l.* There was a considerable increase in the value of the silk and shawl manufactures, the whole value of the Punjab manufactures being estimated at 5,315,400*l.* From the handlooms come valuable white and coloured cotton cloths, and thick floor cloths with coloured stripes. The woollen manufactures are from the exquisitely soft fleeces of Rampur and Kirman, from country sheep wool, and goat and camel hair. The silk manufactures of the Punjab also form an important branch of industry. The chief seats, Amritsar, Lahor, Multan, Bhawalpur, and Jalandhar; and the raw silk is obtained from the Afghan and Yarkandi merchants, from Bengal and China. The boat traffic on the Indus is registered at Sakhar. The up trade amounted to 95,286 maunds, worth 47,588*l.*, and the down trade to 587,646 maunds, worth 448,476*l.*

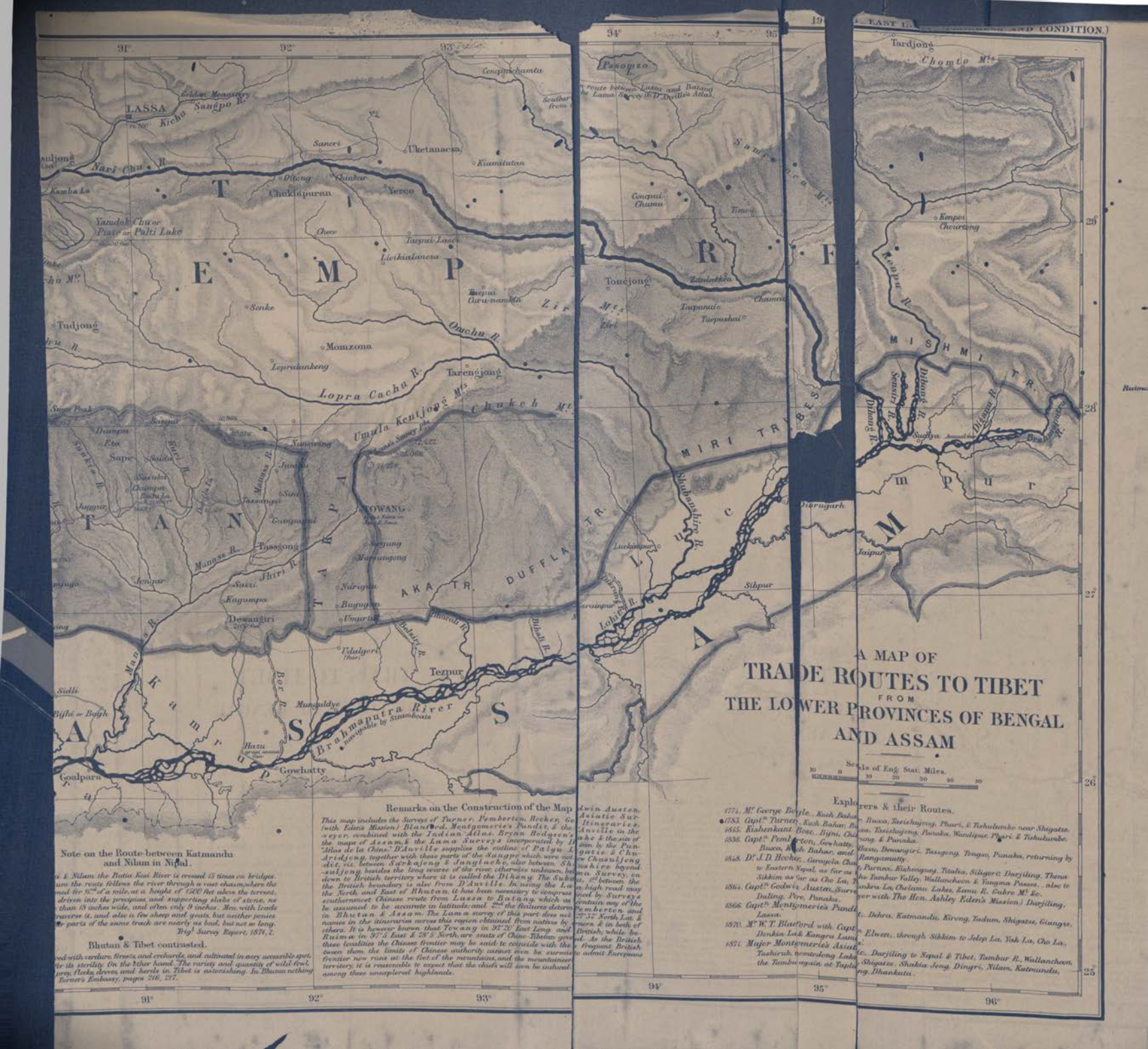
From Delhi come the silk embroideries, and Benares is famous for its gold brocades. In the Bombay Presidency there are extensive silk manufactures, all by handloom weaving, and all consumed at home, the raw silk coming chiefly from China and the Persian Gulf. At Ahmadabad there are manufactures of brocades rivalling those of Benares. The exhibitions at Lahor, Rurki, and Calcutta, in 1864, at Nágpur in 1866, and at Madras, and other places in India, have been very useful in stimulating manufactures, and making designers mutually acquainted with the products of the different parts of a vast empire. The commencement of European influence of the best kind on Indian manufactories is beginning to be clearly perceptible. An advance is being made in every department, but schools of design are much needed, and one at Lahor has been determined on. The labours of Dr. Hunter at Madras in this direction have been most useful.

If the once famous manufactures of Bengal, the silk stuffs and Dacca muslins, have nearly disappeared, it has only been to change their seats, but not to be destroyed. These industries not only still exist, but they are growing in importance, and in some respects are likely to hold their own against the imports from Europe. The very fine and richly decorated tissues, for instance, will probably always be better and more cheaply manufactured by hand.

The trade of the Ganges is registered at Sahebgunj, because all the great tributaries enter the main river above that point, and it is above the point where any Ganges mouths leave the parent stream. During 1872–73 the number of boats that passed Sahebgunj was 43,000, with an average freight of 300 maunds each; and 11 steamers belonging to a European Company passed up and down, which seem to get very little of the ordinary traffic of the country. The total weight of the cargoes

*From the *Calcutta Review*, July, 1874.

T I B E T
C H I N E S E
E M P I R E
N E P A L
B H U T A N
T A R T A R Y
THE LOWER PROVINCES OF BENGAL
A S S A M
Note on the Route between Katmandu and Silom in Nepal.
Bhutan & Tibet contrasted.
Remarks on the Construction of the Map


A MAP OF
TRADE ROUTES TO TIBET
FROM
THE LOWER PROVINCES OF BENGAL
AND ASSAM
Scale of Eng. Stat. Miles.
Explorers & their Routes.
Remarks on the Construction of the Map
Note on the Route between Katmandu and Nilam in Nipal.
Bhutan & Tibet contrasted.
LASSA
Kichu Sangpo R.
Nari Chu R.
Kamba La
Yamdok Cho or Palti Lake
Tudjong
Momzong
Lopra Cacha R.
Tarenejong
Umila Kentjong Mts
Chuker Mt
Dungra
Sangur
Sirkha R.
Sape
Saitha R.
Manass R.
Jhiri R.
Tassang
Tassong
Jongar
Sassi
Kagumpa
Dewangiri
Udalgiri
Tezpur
Mundaldye
Brahmapura River
navigable by Steamboats
Goalpara
Gowhatty
Bor R.
Mara R.
Bhoroli R.
Bhalukpo R.
Bilash R.
Dibrugarh
Sibpur
Jaipur
Lakhimpur
Subansiri R.
Luhit R.
Dihong R.
Dibong R.
Sadiya
Kenpet Chourtong
Tardjong
Chomlo Mts
Pasopzo
Tawang
Toujong
Tsepuna
Tsepushai
Zimithang
Chamna
Kongpu R.
Sanpu R.
Tsangpo R.
Yarou Tsangpo R.
Brahmakund
Kamrup
Nagaon
Darrang
Lakhimpur
Sibsagar
Jaipur
Assam
Bhutan
Tibet
Thibet
Duffla Tr.
Akka Tr.
Miri Tribes
Mishmi Tr.
Singpho Tr.
Kamptee Tr.
Kamptee Mts
Chulikata Mts
Patkoi Mts
Naga Hills
Garo Hills
Khasia Hills
Jaintia Hills
Cachar
Sylhet
Tipperah
Chittagong
Arracan
Burmah
Ava
Pegu
Martaban
Tenasserim
Siam
Cambodia
Cochin China
Tonquin
China
Yunnan
Kiang-si
Kwang-si
Kwang-tung
Hainan
Formosa
Philippine Islands
Luzon
Mindoro
Panay
Negros
Cebu
Bohol
Mindanao
Sooloo Archipelago
Borneo
Celebes
Java
Sumatra
Malacca
Singapore
Penang
Andaman Islands
Nicobar Islands
Ceylon
Maldive Islands
Laccadive Islands
Bay of Bengal
Arabian Sea
Indian Ocean
Equator
Tropic of Cancer
Meridian of Greenwich
Meridian of Calcutta
Meridian of Paris
Meridian of Pekin
Meridian of Ferro
Meridian of Washington
Meridian of Madrid
Meridian of Rome
Meridian of Berlin
Meridian of Vienna
Meridian of Constantinople
Meridian of Alexandria
Meridian of Jerusalem
Meridian of Mecca
Meridian of Teheran
Meridian of Kabul
Meridian of Kandahar
Meridian of Herat
Meridian of Samarkand
Meridian of Bokhara
Meridian of Khiva
Meridian of Astrakhan
Meridian of Moscow
Meridian of St. Petersburg
Meridian of Stockholm
Meridian of Copenhagen
Meridian of Amsterdam
Meridian of London
Meridian of Paris
Meridian of Madrid
Meridian of Rome
Meridian of Berlin
Meridian of Vienna
Meridian of Constantinople
Meridian of Alexandria
Meridian of Jerusalem
Meridian of Mecca
Meridian of Teheran
Meridian of Kabul
Meridian of Kandahar
Meridian of Herat
Meridian of Samarkand
Meridian of Bokhara
Meridian of Khiva
Meridian of Astrakhan
Meridian of Moscow
Meridian of St. Petersburg
Meridian of Stockholm
Meridian of Copenhagen
Meridian of Amsterdam
Meridian of London

was 209,200 tons down, and 182,766 up stream; chiefly oil seeds, pulses, sugar, wheat, tobacco, cotton, and saltpetre going down, and rice, salt, and gunnies going up.

In Oudh there is great excess of exports of agricultural produce over imports, and the province is dependent on outside trade for all manufactured goods, except coarse cotton cloths. The Central Provinces have large cotton manufactories, and the railways carry the great bulk of the traffic. A good deal of China silk is also used up in making the ornamental borders of the better sort of Nágpur cottons; and a considerable quantity of coarse brown silk, commonly called tussar, is raised in the Chattisghar country. The importation of cotton and grain from Málwa is increasing, the arrival of cocoa-nuts from the North-West Provinces has nearly doubled, and the imports from the east coast consist of salt and tobacco. Cotton is, of course, the great article of export. But there are no statistics of the weaving trade. The external trade of the Central Provinces, taking exports and imports together, is estimated at 12,750,000*l*. In Mysore there is no regular system of registering the trade; but the value of the exports for 1872–73 is given at 1,128,312*l*. They consist of betel nut, coffee, cotton, cardamoms, rice, silk, and sugar. The imports were 2,146,423*l*., consisting mainly of iron, gold, pepper, salt, and pulses. Silk and cotton manufacture is carried on to a considerable extent, as well as the working of cutlery, copper vessels, and gold and silver lace. There is a large sugar manufactory at Palahalli, in the Ashtagram division. In the Madras Presidency complete information respecting internal trade and manufactures is wanting.

The numerous fairs held all over India, generally on occasion of pilgrimages to shrines, are most useful as stimulants to trade, and as extending the knowledge and increasing the wants of the people. At the great Delhi fairs 50,000 persons assemble, some of them coming from distances of 500 miles; and at the last great solar eclipse at Thaneswar, in Ambála, in 1861, 200,000 persons assembled, from distances extending to 1,000 miles; and there are 127 other fairs in the Punjab, at which the assemblies number 10,000 and upwards. A set of rules has been promulgated for police management, water supply, conservancy, and medical aid, during the more important fairs. In the Bombay Presidency the *jattras*, or fairs, are held in all parts of the country, and in Sind, where they are held in honour of Moslem saints, the fairs are very numerous. This custom of assembling at shrines, and of taking the opportunity of the occasion to display merchandise, prevails in all parts of India, and is of immense advantage to the commerce of the country.

The exhibitions have served similar useful ends, but on a much more extensive scale, by disseminating knowledge of the products of India throughout all parts of the country, and by giving merchants and manufacturers broader and more enlightened views of their own interests, and of the interests of their customers. Mr. Baden Powell's handbooks of the manufactures and arts, and of the economic products of the Punjab, are most valuable results of the Lahor Exhibition. Dr. Forbes Watson has done much to furnish the means of obtaining an accurate knowledge of Indian wants to manufacturers in England. He has collected specimens of textile manufactures of India in 18 volumes, of which 20 sets have been prepared They may be looked upon as 20 industrial museums to promote trade operations between the East and West in this department of commerce. They exhibit tissues which suit the Indian markets, and illustrate the principles which must be observed in all attempts to introduce into them designs which will satisfy the tastes of the people. These volumes have been presented on condition of their being kept in suitable buildings, and made readily accessible to 12 of the principal centres of manufacture in Great Britain, and to seven of the cities of India.

Dr. Forbes Watson has also submitted an elaborate and carefully thought-out scheme for an industrial survey of India, with a statement of the measures required to make its results available to commerce. There is still a want of a really exhaustive and systematic knowledge of the various products of India. There are abundant materials for a general superficial acquaintance with the subject; but more precise and comprehensive information is required, in order to render such knowledge really useful and practical. There are 2,000 articles named in trade returns, and 7,000 more are mentioned in various works, while the list is doubtless very incomplete, and there is some confusion about almost every article. A complete collection and identification of raw produce and of manufactured goods are required; trade museums might be formed, and an industrial survey organised. Limited markets are a bar to improvements, and production on a small scale is wasteful and costly.

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The proposed survey, among other useful results, might promote an extension of the demand for products of all kinds, by affording to every part of India easily accessible means of information with regard to the productions of the whole country. Dr. Forbes Watson's proposals are now under the consideration of the Government of India.

X.

CONDITION OF THE PEOPLE.

THE order for taking a census of the people of British India, and the measures that have been taken for introducing a system of birth and death registration, show the pressing need that is felt for accurate statistics in all administrative work. Without correct information regarding the numbers of the people, there is no basis on which to found conclusions on the growth and rate of increase, on the sufficiency of food supplies, on the incidence of taxation, or on the spread of education. Such information is also necessary in order to show the health and general condition of the people, and the extent to which the rate of increase is modified by variations of seasons, conditions of water supply, and other causes.

Before the census of 1871, the want of statistical information in the provinces under the administration of the Lieutenant-Governor of Bengal had reached an extreme point. One or two examples will show the sort of dependence that can be placed in figures that are given in previous Administration Reports. In 1870 the population of Naddea was given at 568,712, "according to the latest returns." The population, according to the census, is 1,812,795. The same Report of 1870 gave the population of Cuttack at 215,835. It is really 1,449,784.

The Bengal census was taken under the superintendence of Mr. Beverley, between December, 1871, and March, 1872. It was found impossible to make a synchronous census, or to adhere closely to all the details of the system adopted in England. All attempts to lay down any detailed scheme of operations to be adopted everywhere alike were abandoned, and plans were devised which seemed best adapted to attain the object in different localities. The English method was adhered to as closely as possible, and departed from as little as was practicable; and in some of the more important districts, including Rájsháhi, Dacca, and Calcutta, the enumerations were taken simultaneously.

The plan generally adopted was as follows:—The old divisions of the country were into villages, pergunnahs, chucklas, circas, and soubahs or vice-royalties. But the judicial divisions were different, so that the limits of a collector's jurisdiction as regards revenue matters are often not conterminous with his magisterial jurisdiction. There was too much uncertainty about such boundaries, and they were unsuited for census purposes. The country is also divided into police jurisdictions, called *thannahs* (by Regulation XXII. of 1813), each with an area of about 20 square miles, and as the agency of the police was resorted to, it was found most convenient to take the census according to these *thannahs*. The first step was to cause a list of villages and hamlets in each *thannah* to be prepared. Two enumerators were then appointed for each village, who were generally the head men. Their first duty was to submit a list of houses, with the names of occupants, and the correctness of a certain number of these lists was tested by the police. The census forms were then distributed, to be filled in and returned. The municipalities were called upon to make their own census arrangements, and the hill chiefs made lists of their followers. The boat population, which was an important item, consisting of 300,000 persons in 60,000 boats, was reached by taking a census at every landing during several days, the boats being marked as they were counted to prevent their being taken twice over.

The census appears to have been regarded in some districts with much suspicion by the people, who naturally believed that it was the forerunner of a new tax; and all sorts of rumours were spread abroad. One man hid his babies, on the ground that they were too young to be taxed. In Murshidabad it was believed that the authorities intended to blow the surplus population away from guns; in other places it was reported that it was to be drafted to the hills, where coolies were wanted. But generally the people patiently resigned themselves to their fate, and were counted without making any actual resistance; and they are doubtless waiting, in great suspense, for the expected consequences of the measure. The form distributed to the enumerators had columns for the number of houses, the names of adult males in each, the number of adult females, boys, girls, and the totals, with caste, nationality, and occupation. The census was not scientifically accurate from not being simultaneous, but it was taken with great care, and the population is, if anything, understated. Its total cost was 21,600*l.*, or about a farthing a head.

This was the first regular enumeration of these Provinces, and the result is most

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surprising. Indeed, Sir G. Campbell observes that it may almost be said to revolutionise our ideas both in regard to the amount of the population and relatively in regard to its distribution in different districts, races, and religions; while by showing that the numbers vastly exceed any former computation, it wholly altered calculations with respect to the incidence of taxation, the consumption of salt, and many other matters. The total number of persons counted in the provinces under the Government of Bengal was found to be 66,856,859, of whom about 2,000,000 belong to the tributary States. The population of Calcutta was 447,600. The population of the Lower Provinces, given in the Administration Report of 1870–71, was 42,500,000; so the reality was more than half again, and all calculations based upon those figures are wrong to that extent. Half the area of the Bengal Government consists of the hilly and thinly populated tracts of Chota Nágpur and Assam, with only 87 and 63 souls to the square mile. But the other half is one of the most densely peopled countries in the world. In Bardwán there are 573, in Patna 553, in Rájsháhi 500 souls to the square mile, as compared with 262 in the United Kingdom, and 422 taking England alone. For the whole of Bengal, in the restricted sense of that word, the number is 430, for Behar 465. But if the unculturable or uncultivated lands at the foot of the hills, or waste and marshy, are left out, the food-producing area cannot average less than 650 souls to the square mile, or one for each half acre, crops being excluded which are not food producing. This enormous population, moreover, inhabits a country which exports grain, so that the supply of food is abundant in ordinary years. But the consequences of a failure of crops are terrible to think of, and the bare possibility points to the urgent importance of a perfect system of communications between all the grain-producing provinces both by sea and land.

The census shows that the number of men and women is nearly equal, there being 99·6 females to every hundred males; and a tendency to excess of males over females nowhere appears. In some districts the males, in others the females preponderate.

About two-thirds of the population are agriculturists. But the most interesting results are those which show the proportion of Hindus and Muhammadans. In Central and Eastern portions half the population is Muhammadan, while in some of the districts the latter largely preponderate. Yet is is very remarkable that this preponderance does not prevail around the old seats of Muhammadan power. In Dacca there are comparatively few, round the site of ancient Gour hardly any, at Patna only twelve per cent. of the inhabitants, and at Murshidabad the vast majority of the people is Hindu. The conclusion is that the Bengal Muhammadans are not descendants of the old conquerors, but of converts, who were low-caste Hindus, and embraced Islam to escape from their ignoble position under the Hindu system. These provinces contain 21,000,000 Muhammadans, more than in any other country in the world, and they are probably on the increase. It is asserted (but the assertion must taken with reserve) that it is a mistake to suppose that the Hindu religion is not proselytising. Any number of outsiders, so long as they do not interfere with established castes, can form a new caste and call themselves Hindus, and the Brahmins are always ready to receive all who submit to and pay them.

The census of the North-West Provinces was taken between the 20th of May, 1872, and the 15th of November, 1873; the actual enumeration having been made on the 18th of January, 1872. The operations were conducted under the superintendence of Mr. W. Chicheley Plowden. The preliminary work was carried on in the end of 1871, and consisted of an enumeration of houses and their inmates by a staff of 84,277 enumerators under 10,140 supervisors, there being one enumerator to every 75 houses. The machinery of supervisors and enumerators was under the Tahsildars of the districts. The two previous enumerations of the population of the North-West Provinces were in 1853 and 1865; and, in addition to improved machinery, the most important feature of the census of 1872 is the careful attempt, made by Mr. Plowden, to classify the population by age.

The result was that the population of the North-West Provinces, embracing an area of 81,403 square miles, proved to be 30,769,056, of whom 16,413,642 were males and 14,367,562 females. The number of houses was 6,359,092. The number of inhabitants to the square mile was 378. The densest district, exceeding even any in Bengal, is Benares, where there were 797 souls to the square mile, in Agra 575, in Allahabad 501. The most thinly populated were the hill districts of Kumaon with 72, and Gurhwal with 56 to the square mile.

The vast majority of the inhabitants are Hindus, there being 26,569,074 against

4,189,349 Muhammadans. The native Christians number 7,648. More than half the Muhammadans are collected in one district, that of Rohilkhand. They are divided into Sheikhs, or supposed descendants of Arab invaders of India, a title generally assumed by all Muhammadans who do not come under the other three classes, namely, Saiads, Moghuls, and Pathans. Of the Hindu castes, the Brahmans number 3,234,342, congregating chiefly in Benares, Allahabad, and Agra. The Thakurs or Rajpúts number 239,688, the Baniyas 1,025,342, and the 304 other inferior castes 19,910,230. The agricultural population includes 56 per cent. of the whole. The inhabited villages number 90,684; and of the towns there are 204 with a population over 5,000, and 13 where the number of inhabitants exceeds 50,000. Benares is the most populous city in these provinces, numbering 174,188 souls, then follows Agra with 149,008 and Allahabad with 142,770.

Mr. Plowden made a careful attempt to classify the ages of the people, which is most valuable in connection with all inquiries relating to the average duration of life, and to the well-being of the people. His classification is on the same plan as that adopted in England, the ages of the population being divided into nine terms or periods. Perhaps the most suggestive discovery is the extraordinary disparity between the number of girls and boys. Between birth and the age of five there were 161 boys to 170 girls; yet between the ages of five and ten there are 132 boys to 118 girls and between ten and fifteen 102 boys to 79 girls. This points not only to a uniform concealment of girls between the ages of five and fifteen, but also to the suspicion that much female infanticide still prevails.* This is confirmed by the serious disparity between the sexes of all ages. There were 11,424 males to every 10,000 females.

There has been no recent census in the Punjab; the last enumeration having been in 1868, when the population was given at 17,596,752. It is now roughly guessed at 19,000,000, or 173 to the square mile. In Oudh the population was given at 11,220,232, or 469 to the square mile, at the last numbering of the people in 1869.

The census of the Central Provinces, under the superintendence of Mr. Neill, was the second that has been taken, the first having been made in 1866. The general arrangements were similar to those of the North-West Provinces. Each *Tahsil* was divided into circles, each including a certain number of villages, and over each circle there was a superintendent to overlook the work of the enumerators, who were generally the *Patwaris* or head men of villages. The census papers were filled up, scrutinised, and tested, preparatory to the regular enumeration which took place on the night of the 25th of January, 1872. The returns, of which there were 196,120 in various languages—Hindi, Marathi, Urdu, and Telugu—were then sent in to the Census Office, with the columns filled in, stating names, age, religion, caste, occupation, sex of the inmates of each house. The population proved to be 9,251,229, over an area of 113,797 square miles, or 81·3 to each square mile, a sparsely peopled region with abundant room for future increase. The most thickly peopled portion is the Nágpur plain, and next comes a portion of the Narbada valley. There are three towns with a population over 15,000 and 39 with more than 5,000; but the bulk of the population is scattered in small villages. The above figures include the feudatory chiefships. If these are excluded the population is 8,200,000 over 84,963 square miles, or 96 to the square mile. The agriculturists form 64 per cent. of the population. The Hindus are 71 per cent., and the Muhammadans 2·8 per cent. of the population. About 2,000,000 are hill tribesmen, and the number of Christians is reported to be 10,477. The proportion of the sexes is given at 96·6 females to every 100 males.

The census of the Madras Presidency was taken in 1871, but the full report has not yet been received. The first enumeration of this presidency was made in 1822, and there have been others in 1836, 1852, 1857, 1862, and 1867, but the figures are absurd in the earlier returns, and obviously unreliable in the others. For the census of 1871 there was first a preliminary house to house visitation, which was commenced in January. The accountants of the villages prepared and transmitted to the Tahsildars of Talugs registers of houses, and placed a number on each house. There was then a preliminary enumeration in July, when the inmates of every house were registered; and afterwards 10 per cent. of the entries were tested by the supervisors. The final enumeration took place on the 15th of November, 1871, everywhere except in Tanjor, where it was deferred owing to the presence of numerous strangers at a festival. There were 71,641 enumerators, generally village officers, who sent the

* See page 129.

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returns to the supervisors to be tested, whence they were transmitted to the Census Office for final scrutiny and tabulation. The results show the previous enumerations to be worthless. The population of the Madras Presidency proved to be 31,597,872; the number of houses was 6,229,954. The most densely peopled district was the fertile rice-producing region of Tanjor, where there were 540 to the square mile; then followed Malabar with 376, South Arcot with 360, and Trichinapolli with 341. Besides a few Uriyas in the northern extreme of Ganjam, the population is divided into four races, speaking branches of the Dravidian group of languages. In Kurnúl, Kadapa, part of Balari and Nellor, are the Telugu speaking people, numbering 11,610,000. The Tamils spread from a few miles north of Madras to Cape Comorin, along the east coast, and count 14,715,000 souls. The Kanarese, in part of Balari, Mysore, Coimbator, Salem, and North Kanara, number 1,699,000; and the Malayalum speaking people of Malabar, Cochin, and Travancore, number 2,324,000. The distribution of caste and religion in the Madras Presidency is particularly interesting, because it indicates the extent and relative completeness of the successive waves of invasion. For instance, the 1,095,445 Brahmans in the Presidency are chiefly found in the northern districts. The Chetties, or merchants, number 714,712; the Vellala, or agricultural caste counts 7,826,126, who acknowledge Siva, but worship their own village gods. There are 1,730,681 of the shepherd class, 785,085 of the artisan, 1,071,781 of the weaver, 250,343 of the potter, and 3,944,463 of the Vannia or labouring caste. Of the outcasts, the Shanars or toddy-drawers, in the far south, who are either demon-worshippers or Christians, count 1,664,862, and the Pariahs 4,761,303 souls. There are nearly 29 million Hindus, or 92 per cent. of the whole population; about two million Muhammadans, and 490,299 native Christians, of whom 102,249 are natives of Tinnivelly. The Moplahs, those industrious but fanatical Muhammadans of Malabar, number 612,789 souls. The proportion of the sexes is satisfactory, being .99 females to every 100 males; while in the city of Madras the females largely predominate, there being 104 women to every 100 men.

The census of the city of Madras, the full report on which has been received, was managed and superintended by the lamented Mr. Gover, the accomplished author of "Tamil Folk Lore." He sickened, and died from overwork before his report was completed.* There were 64 enumerators and 17 testers, and the first work was the numbering of the houses, after which the final enumeration commenced on the 13th of November, 1871, and went on for seven days. Madras consists of 36 large villages, covering an area of 27 square miles. The population proved to be 397,522, which is very much less than was supposed. The occupations were classified according to Dr. Farr's scheme, and included as many as 657, the number of castes being 195.

The report of the census of the city of Bombay has arrived in England, but not that of the whole Presidency. The general superintendence of the census of the presidency was entrusted to the Sanitary Commissioner, the district operations being under the collectors. The final enumeration was made throughout the Presidency on the 21st of February, 1872. The whole area, excluding native states, is 124,943 square miles, and the population proved to be 16,352,623, or 131 to the square mile. The number of houses was 2,164,338, or 4·9 souls to each house. About 76 per cent. of the population (12,440,000) are Hindus; 17 per cent. (2,847,000) Muhammadans; 1 per cent. (192,245) Buddhists; 0·6 per cent. (106,133) Christians; 0·4 per cent. (67,115) Parsis, two-thirds living in the city of Bombay; and 3·7 per cent. aborigines. In Sind alone is the majority of the population Muhammadan. In that province the followers of the prophet number 4 to 1 of the population. The enumeration of the city of Bombay was made on the same day as the rest of the Presidency. The population was 644,405, of whom 22,860 men and 93 women were in the harbour. Thus the three Presidency towns have populations amounting to 644,405 in Bombay, 447,600 in Calcutta, and 397,522 in Madras; and Bombay being the most populous, not only in British India, but, next to London, in the whole empire. The people are, however, fearfully over-crowded. There are 29,691 houses, or an average of 20·9 persons in each house. In one part of Bombay there are 40 people to each house. The area of the island is 22 square miles and 105 acres; and 898·5 acres have been reclaimed from the foreshore of late years. Thus the number of inhabitants to the square mile is 33,372. The Hindus number 408,680, divided into 56 castes. The Muhammadans form 21·3 per cent. of the population; and there are 43,945 Parsis and 23,534 Indo-Portuguese.

* There is a well merited tribute to the memory of this accomplished young scholar in the new volume of Mr. Talboys Wheeler's History of India, *note* p. 21.

The census in Mysore was taken in November, 1871. The population was 5,055,412, or 187 to the square mile, of whom 4,807,667 were Hindus, 208,991 Muhammadans, and 25,676 Christians. The population of the little mountain province of Curg is 168,312, of whom, only 26,389 are of the dominant Curg race.

There is now a steady and persevering determination throughout India to obtain more accurate vital statistics. A system of mortuary registration was generally introduced in about 1864 to 1866, and a registration of births in about 1870. The figures obtained are, as a rule, worthless, but they are in one respect satisfactory. Both the death and birth registers show an increase every year, which is not due to any change in the actual rates, but to improved registration ; and there is a determination to push this improvement forward year by year, until a real approach to the actual facts is attained. The returns of deaths are now quite worthless. In Bengal the mortality was said to be only 4 in 1,000, and in the district of Mymensing only 1 in 1,000! During 1872–73, Sir George Campbell made a tentative reform in the system under which mortuary statistics are acquired. He saw that the acquisition of accurate statistics over the enormous area of the Lower Provinces, with their vast populations and uneducated agencies, was at present impossible. But he resolved to perfect the system on a smaller scale, over certain experimental selected areas, chosen with reference to geographical situation, so as to be accessible and easily supervised. It was arranged that the census should be taken in these areas with special care. The town areas thus chosen were usually the head-quarter stations of districts, and the country areas were limited to a moderate number of compactly situated villages. A wide discretion was given to the local officers in selecting agencies, and a sanitary clerk was allowed to the civil surgeons of selected stations to aid in the compilation of vital statistics. The experiment was commenced on the 1st of January, 1873, and reports, showing undoubted improvement, have been received for the first two quarters of 1873 from the Sanitary Commissioner. There are 101 selected areas, with a population of 1,922,608, and in most of them there has been a step in advance towards ascertaining actual facts with reference to death-rates, though there are many failures. The returns of births are also imperfect, but there is great improvement.

In the end of 1872 the Secretary of State called for a special report on the vital statistics of Calcutta, owing to the Army Sanitary Commission having submitted a memorandum inviting special attention to points regarding mortality returns, which seemed to cast doubt on their value. The figures show a decrease, in five years, of mortality from 20,000 a year to 10,000. If this be a fact, it is certainly unprecedented in the history of sanitation. The returns show that 10,000 lives a year are saved by proper water supply and effective drainage. Yet, if the facts are considered, this result is not surprising. Fifteen years ago there was no drainage at Calcutta. The filth of the city rotted in the midst of the population in pestilential ditches, or floated backwards and forwards with every tide in the river. The inhabitants drank the loathsome water of the river, which was not only the receptacle of filth but the great graveyard of the city, or else they resorted to the still filthier contents of shallow tanks. Now Calcutta is drained, and possesses a water supply far better than that of London, and as good as that of Glasgow. Surely a large reduction in the death-rate is a natural consequence of this change. Registration was first introduced into Calcutta in 1864, and neglect was rendered penal. Birth registration is now fairly correct, and the mortuary returns received from each police inspector of the 21 sections into which the city is divided are checked by other returns from the sextons of cemeteries, and the clerks of the burning ghauts.

In the North-West Provinces there is an endeavour to obtain more accurate mortuary returns, through a new system of entrusting the duty of reporting death to the chaukidars or village police, and the registration of deaths to the clerks at the police stations. There is increasing accuracy, but the death-rate of 1872 is returned at 23 in 1,000, which is obviously absurd, for the death-rate in England is 22·5 in 1,000. There is no information with reference to the death-rate of particular ages, classes, or occupations ; but Sir William Muir's measures for the suppression of infanticide will secure improvement in the registration of births. In the Punjab the returns of births are quite useless, though there is some improvement in the mortuary registration ; in 1871 it was given at 21 in 1,000, and now at 24 in 1,000. In particular cities a much higher rate is given, owing to the prevalence of cholera and other diseases. In Delhi it was 54, and in Peshawar 65 per 1,000. In Oudh there is no attempt at any registration of births; while the return

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deaths is quite worthless, being derived from reports of village watchmen, and even as 17 per 1,000. In the Central Provinces the vital statistics are collected through the agency of the police, the village watchmen reporting births and deaths; but the resulting figures are worthless.

In the Madras Presidency the registration of births was commenced in 1870, and there has been a gradual advance in the number registered year by year. In 1872 there was an increase of 15 per cent. over that of the previous year. There is a nearer approach to accuracy in the municipal towns than in the rural districts. The mortuary registration was commenced in 1866, and the increase in the number of deaths recorded is due to more efficient registration, but it is still very imperfect. In the Bombay Presidency the registration of deaths was commenced in 1865, and there has been a regular increase, which shows greater attention. But the figures hitherto collected are practically useless. Birth registration has only just been commenced. A vast number of birth and deaths are still concealed, or never reported, in all parts of India.

The absence of correct statistics makes it difficult to arrive at conclusions respecting the actual condition of the people, and the extent to which they can enjoy life. For instance, the enormous error in the estimate of the population of Bengal entirely vitiated previous calculations with reference to the consumption of salt in each family; and the comparison between rates of wages and prices of grain is another test which is not always applicable. In Bengal, for example, the agricultural ryots, or small farmers, are a numerous class in most districts, and they benefit by a rise in prices.

The Calcutta Missionary Conference dwelt on the miserable abject condition of the Bengal ryots, and there is evidence that they suffer many things, and are often in want of absolute necessaries. As a rule they are comparatively better off in eastern Bengal, and worse off in the west; the rates of wages being higher in the east, and food cheaper, while rents are less screwed up to rack-rent pitch, and light in comparison to the productiveness of the soil, and the remunerative character of their special crop—jute. In the west, and in the Behar and Orissa, many labourers supplement home means by going to other parts of the country for temporary service and labour. In Bardwan the people are poorer than elsewhere, and the people of Assam, judged by an Indian standard, are very well off.

In the North-West Provinces the wages of agricultural labour have hardly varied at all since the early part of this century; and, after the payment of the rent, the margin left for the cultivator's subsistence is less than the value of the labour he has expended on his land. The wages of a labourer in the ploughing season furnish him with 50 ounces of *behjur*, a compound of barley and peas, of which about 46 ounces are nutritious. In the digging and weeding season he only gets 34 ounces, but sometimes his wife earns enough for 25 ounces more. He only tastes salt two or three times a week. Many live on a coarse grain called *kesari*, which is most unwholesome, and produces loin palsy. The small tenant farmers only get about the same amount of *behjur*, although they can have salt daily. This extreme poverty among the agricultural population is one of the reasons which makes any improvement in farming and cultivation so difficult. In the Punjab wages range from 7a. 3p. to 4a. 11p. for skilled, and 3a. 3p. to 2a. 5p. for unskilled labour, and there has been a steady rise in the price of grain. In January, 1873, rice sold at 5s. 9c., salt 12s. 5c., wheat 20s. 10c., barley 27s. 8c., and jawari 30s. 12c. for the rupee.* In Oudh wages were 4a. 5p. a day for skilled, and 1a. 11p. for unskilled labour; and prices were, for rice, from 3r. 7a. 11p. to 2r. 10a. 5p., wheat 2r. 2a. 9p., and salt 7r. 9a. 11p. per maund of $82\frac{2}{7}$ lbs. In the Central Provinces skilled labour fetches 6a. to 12a., and unskilled 1a. 6p. to 4a.; and the prices, in 1873, were 3r. 10a. to 1r. for rice, 2r. 8a. to 1r. for wheat, 1r. 11a. to 1r. 3a. for jawari, and 6r. 2a. to 4r. 8a. for salt per maund. In Mysore and Curg the wages range higher, in consequence of the great demand for labour, caused by the proximity of the coffee plantations of Curg and Wynaad. Many thousands of coolies annually come up to Wynaad, both from Mysore and Malabar; and in 1860 wages in Wynaad were 3 annas a day. In 1865 the coolies at work on the Wynaad plantations received 4 annas a day; and now the pay of an unskilled labourer in Mysore is stated to range in some places

* This statement of prices gives the number of seers (of 80 tolas) and chittacks obtainable for a Government rupee. A seer is equal to 1 lb. 13 ozs., and there are 16 chittacks in a seer. A maund is 40 seers, or $82\frac{2}{7}$ lbs.

as high as 8 annas, or sixpence a day. The Mysore people, who are Canarese, live on a small dark-coloured grain called *ragi*, and the natives of Malabar on rice; and the rise in the price of grain has nearly, if not quite, kept pace with the increase in wages. The Mysore people store their *ragi* in underground pits, for use in time of scarcity, where it will keep for 40 or 50 years.

On the coffee plantations the labourers are supplied with suitable huts of split bamboo plastered with mud, and as soon as the coffee crop is picked they return to their homes in Mysore and Malabar, to look after their own crops and spend their money, returning to the plantations for the weeding during the monsoon. In the hill district of Curg the wages of skilled labour are 10*d.*, and of unskilled, 3½*d.* a day.

In the Bombay Presidency wages are much higher, from a variety of causes; a skilled labourer receives from 2*s.* to 8*d.*, and an unskilled labourer from about 6*d.* to 3*d.* a day; and the price of rice ranged, in 1873, from 12 to 10 shillings a maund of 40 sírs. Bajri was from 6 shillings to 2*s.* 3*d.* the maund, and wheat from 8 shillings to 4*s.* 9*d.* The best account of the Bombay peasantry is still, probably, that by Mr. Coats, written 50 years ago. The clothes of a man then cost about 12 shillings, and the furniture of his house about 2*l.*: and his food consists, not of rice, but of dry grains, such as *bajri* and *jawari*, with pulses and salt. The people of Mysore and most of those in the Madras Presidency, also live on dry grains and pulses. Dr. Forbes Watson has shown the proportion in which certain Indian pulses must be eaten with dry grains, in order that the mixture may contain the same proportion of carboniferous and nitrogenous matter as is found in wheat, namely, six to one. The natives habitually combine these two classes of food in their dishes in such proportion as to give the same amount of nourishment as wheat, and thus show how wonderfully correct their immemorial experience has made them. Their weary round of labour is brightened by several festivals, and by annual pilgrimages to the temples.

As to the morals of the people, whatever may be said of the larger towns, the residents of villages are no better and no worse than the same classes elsewhere; temperate, as a rule; chaste, honest, peaceful, singularly docile, easily governed, and patient. Of course there is great variety of temperament and character, as there is of physical appearance in the different latitudes over which British India extends.

The climate and sanitary condition of India give rise to pestilences which periodically carry desolation over the country, while disease in its worst forms is never absent. Hospitals, richly endowed and admirably regulated, supported as well by Government as by private munificence, exist in all the large towns; and great efforts are constantly made to bring the benefits of medical skill and knowledge within reach of the poorer classes. In Calcutta there are three first-class hospitals, besides a large municipal pauper hospital, and a good hospital at Haurah, on the other side of the Hugli. The amount paid by the Government for medical charities in Calcutta is 30,000*l.* a year. There are 176 charitable dispensaries throughout the Bengal provinces, exclusive of the Calcutta hospitals and of the temporary dispensaries for the relief of unusual sickness. During 1872–73 the number of patients treated was 457,295; by far the greatest number for fever. In the North-West Provinces there are 131 Government hospitals and dispensaries, which relieved 761,273 patients during the year under review, of which 2,641 indoor and 106,605 outdoor patients were for fever. The dispensaries are managed on the principle of grants in aid. When the people of any place erect a suitable building at their own cost, and guarantee a fixed subscription, the medical staff is granted and paid by the Government. The dispensaries are also made use of for training medical pupils, who are passed on to the medical college at Agra. At Bareli and Naini Tal, women are regularly trained in medical and surgical science; and one or two have set up successfully as private practitioners.

In the Punjab there are 116 hospitals and dispensaries, being one to every 160,000 persons. The grant in aid system of the North-West Provinces was introduced in 1866, and since then the number of dispensaries has been increased by 41. The Mayo Hospital, connected with the Lahor Medical School, was completed in March 1872, with accommodation for 114 patients. During the year a dispensary was established at Leh, in Ladak, by Dr. Aitchison, where 419 cases were treated. Among these were 14 operations for cataract, and an amputation of a llama's right leg under chloroform. The latter operation was witnessed with intense delight by all the natives of Yarkand in the town. Dr. Aitchison writes: "I cannot express the

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"pleasure I had in conducting the duties of the Leh Dispensary, nor the regret with "which I parted from the many grateful faces whom I left behind." In the native state of Bhawalpúr there are also four dispensaries with hospital assistants, and 16 rural dispensaries under Hakims. A system prevails in several districts of the Punjab of furnishing medical aid to the people through the instrumentality of native *Hakims*, whose sons are now frequently educated at the Lahor Medical School, and then sent back to their own districts for employment by the local authorities. The Hakimi system in the Punjab is the utilisation of native doctors in times of epidemics, by giving them elementary instruction, medicines, and pay. In Oudh there are 28 Government dispensaries and one private, including the King's Hospital at Lucknow, and the Balrámpur Hospital, opened in 1871. The number of persons treated was 144,712. Native doctors are also employed to visit the fever-stricken poor in the villages, and a good deal of quinine has thus been distributed. The number of such institutions in the Central Provinces during the year under review was 92, of which 77 are partly supported by Government aid, by the appointment of a native medical officer, and the supply of medicines; all other charges being met by local subscriptions. There were 302,831 patients treated in 1872–73. In the Madras Presidency the dispensaries are numerous and work well; and the demand for additional establishments of the same kind are received from many quarters. They are held in high estimation by the people, who are generally willing to support them by direct taxation. In the city of Bombay 1,110 patients were treated at the European General Hospital during the year under review, 6,290 at the Jamsetji Jijibhoy Hospital, and 1,500 in and 11,564 out-patients at the Sassoon Hospital at Poona. The whole number of patients relieved in the Bombay Presidency was 592,033, of which 176,322 were in and out-patients of 33 hospitals, and 383,648 of the 108 dispensaries. There were 93,347 cases of malarious fever, or 24 per cent. of the whole.

Much of the disease in India is due to bad water and bad drainage; and, as regards rural towns and villages, improvements must mainly be the work of the people themselves. Works of this kind have been undertaken with excellent results, as regards the large towns. The new water supply has had a very marked influence in improving the health of the city of Calcutta, and a similar result may confidently be expected from the works at Madras. The great drainage scheme at Cawnpúr is also progressing. The Act VI. (Bengal) of 1871, for the benefit of the Juggernath pilgrims has worked very successfully, under the immediate supervision of the health officer. Lodging-houses at Puri are registered and inspected, and none are licensed but for a limited number of pilgrims. There have been 342 registered, for 6,085 lodgers; the receipts from fees and fines being 497*l*., and expenses 368*l*. A very important sanitary question has long been under consideration with reference to the effect of irrigation canals on the health of the districts through which they pass. As long as in 1847 it was found that an extensive epidemic influence had pervaded a large portion of the North-West Provinces of late years, and that disease was more prevalent and severe in canal-irrigated districts. A committee reported on the subject, suggesting that irrigation might be stopped at a distance of 200 yards from the village sites, and a double row of trees planted round the unirrigated space; and that shallow pools about villages should be drained, when the soil is stiff and clayey. Salubrity depends, in a great measure, on the nature of the soil and the efficiency of surface drainage. It was found that the percolation of water caused an efflorescence of soda, called *reh*, to rise up on the surface of the land, causing not only destruction of the fertility of the soil, but sterility of women and cattle. In certain localities all the inhabitants of villages were found to have enlarged spleens, from the continuance of fever. At present there are several water-logged tracts in Saháranpur and Muzaffarnagar, where the people are fever-stricken. Canal irrigation is to be restricted where the spring level is near the surface, and the cuts are to be deepened, which are now unequal to carry off natural drainage. Meanwhile special medical aid is given, and native doctors have been sent round to dispense quinine from village to village. But as yet there is no conclusive proof of the necessary connection between fever and extensive irrigation from canals. This can only be established by a comparison of the mortuary returns of a large number of canal-irrigated centres with others not so situated. Single comparisons are only misleading. For instance, in the lower Hugli district and part of Midnapur there is no healthy flow of water and no escape. The water stagnates, and a mass of decaying vegetation stagnates in it. Yet there is less fever in these swamps than on the higher ground, and the human race has multiplied in

them to a greater extent than anywhere else in India, perhaps in the world. In the Madras Presidency an opinion prevails that no connection has been proved between canal irrigation and the increase of fever; for the disease affects districts quite irrespective of wet or dry cultivation.

Fever is by far the most prolific cause of death in India, carrying off, except in exceptional years when cholera is raging, very many more than all other diseases and accidents put together. The returns, exclusive of Bengal, the North West Provinces, Madras, and Burma, give upwards of 802,830 deaths from fever in 1872-73, so that the total number in all India cannot be far short of a million and a-half. At least half these lives might be saved if we could put quinine or chinchonidine, or some cheap form of the chinchona alkaloids, retail into every native druggist's shop at 1 rupee per ounce. It is the only real remedy, and the people believe in it, and are ready and anxious to take it. The vast importance of the introduction of chinchona cultivation into India cannot, therefore, be over-estimated; and there is now every prospect of being able to manufacture the febrifuge alkaloids at the plantations at a cheap rate, and of thus conferring a priceless boon on the people. Never was it more needed than now, when fevers are breaking out, in some localities, with unprecedented virulence.

The Bardwán fever is a case in point. Fever of a very severe and fatal type began to rage in Jessor and Naddea, about ten years ago, and in 1864 it spread and crossed the river Hugli. In 1866 it appeared in the east and south parts of Bardwán. In 1868 it spread along the banks of the Damudar, and in 1869 the town of Bardwán was attacked. In 1870 the mortality was not so severe; but in 1871 the fever broke out with renewed virulence, and was more widespread and fatal than ever. It began in July, and continued through the cold season of 1871-2. At the close of 1871 there were five special dispensaries in the town of Bardwán, and twenty in operation in the three rural circles, each with an inspecting medical officer. One assistant-surgeon, five sub-assistant-surgeons, and 24 native doctors were sent to afford medical relief, and a depôt of medical stores was opened at Bardwán. Food and blankets were distributed, as it was thought that the cold of the winter nights had induced relapses. As the weather became warmer the fever subsided somewhat, but in April there was a marked aggravation of the disease, and in August and September it continued to spread; while the heavy rains of October 1872 were followed by a general increase in the severity and virulence of the disease. A grant was made of 10,000*l.* from Imperial funds to aid the operations of medical relief. In 1872-73 four assistant-surgeons, 16 sub-assistant-surgeons, and 73 native doctors were deputed to Bardwán, in addition to those already there; and there were 105 special dispensaries, which were closed and opened according to the requirements of the different localities. The largest number opened at a time was 56, in December 1872. The number of cases treated was 1,275,035. There were also 33 depôts for food and clothing, at which 105,748 persons received relief. Since the close of 1872 fever has gradually abated in Bardwán. In the Hugli district a severe type of fever has prevailed annually since 1864, and dispensaries were opened at which 62,289 cases were treated.

In the end of 1871 a new disease arrived in India called "dengue fever." It appeared at Calcutta in the cold weather, and raged through the hot season of 1872. Few escaped attacks, but deaths were rare. Out of 2,292 treated for dengue fever at Calcutta only 7 died. There is violent fever and racking pain during a few days, followed by great debility and neuralgia. The epidemic spread along the lines of railways and trunk roads. It appeared at Lucknow in July 1872, and died out in November. It broke out in the same year at Cannanore, spread along the lines of road and railway in the Madras Presidency, reached the city of Madras on the 8th of February 1872, and continued to rage there until the following November.

Cholera prevailed in every part of Bengal during 1872-73, but nowhere assumed very large dimensions. Burdwan suffered severely, its appearance being coincident with the arrival of pilgrims from Orissa. It was severe also in Patna, Orissa, and Assam; but its most remarkable feature was its wide distribution throughout the provinces. In the Punjab there was an epidemic of cholera from two centres: the large fair held at Pehonáh in the north of the Karnal district, and the returning pilgrims from Hurdwar, who rapidly spread the disease over Karnúl and Ambála. There were 26,566 deaths from cholera in Oudh. The south of India was comparatively free from it. In October 1873, Dr. Hall reported an important and very successful discovery in the treatment of cholera, by hypodermic injections of chloral hydrate, a powerful sedative. He holds that in the collapse of cholera, instead of exhaustion

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of the nervous system, as was generally supposed, there is intense irritation of certain sets of nerves; and that the principle should be to endeavour to quiet the nervous system by the action of sedatives, instead of giving stimulants. He has treated 19 cases successfully in Oudh, and his system will receive a complete trial.

Small-pox, as a preventible disease, has decreased steadily, but with repeated reactions, since the introduction of vaccination, and vigorous efforts are being made throughout India to promote the spread of the protective check upon the ravages of the disease. Small-pox was not epidemic in Bengal during 1872-73, and Calcutta was very free from it. But it was universal throughout the Punjab, reaching its maximum virulence in May, and its minimum in October. There were 23,728 deaths. In Oudh there were 17,820 deaths from small-pox, and in the Bombay Presidency an alarming outbreak is shown by a return of 29,699 deaths, against 9,403 in the previous year. Small-pox was also unusually prevalent in Madras and Mysore.

Exclusive of native states and British Burma, the number of persons vaccinated in India during the year 1872-73 was 2,544,260. In Bengal there are two systems; one by which a circle is placed under a superintendent, with a subordinate establishment working steadily over the area, and the other being dispensary vaccination. Although vaccination is still far below the requirements, and has barely reached a third of the annual number of persons requiring it in Bengal, yet there is an increase of 88 per cent. over the previous year in the number vaccinated, and a much higher per centage of successful results in primary operations. There was much progress in the North-West Provinces and the Punjab, and vaccination has been introduced into Leh and Bhawalpúr. A most satisfactory increase also took place in the numbers vaccinated in Madras and in Mysore. In the Bombay Presidency important changes have been effected in the vaccination department, which were introduced in August 1871. Each talúk is to be provided with an itinerant vaccinator, paid from local funds, and each collectorate is to have a superintendent of vaccination.

One extraordinary feature of Indian life is the number of human beings destroyed by wild beasts. Rewards are offered by the Government for the killing of these animals; but in some districts the loss of life is very great, and in others, where it is less excessive, the reason given is that goats are very abundant, and that wolves prefer kids when they can get them. Deaths by snake bites are very frequent, no fewer than 14,529 persons having lost their lives in that way in 1869, while in 1871 the total deaths caused by dangerous animals of all classes amounted to 18,078. In 1872-73 there were 1,525 deaths from snake bites in Oudh, and 2,334 from snake bites and wild beasts in the Bombay Presidency. In the Punjab 48 persons were killed by wild beasts during 1872-73; and in Mysore 21. In Curg there were only 7. Dr. Fayrer is of opinion that if systematic returns were kept, the annual number of deaths from snake bites (exclusive of all doubtful cases) would be found to exceed 20,000. The inhabitants of the border lands between jungle and cultivation are killed and eaten by tigers in such numbers as to require the immediate and serious attention of Government, both in India and in England. The following are a few out of many instances: "A single tigress caused the destruction of 13 villages, and 256 square miles of country were thrown out of cultivation." "Wild beasts frequently obstruct Government survey parties. In 1869 one tigress killed 127 people, and stopped a public road for many weeks." "In January 1868, a panther broke into the town of Chicola, and attacked without the slightest provocation the owner of a field. Four persons were dangerously wounded, and one died." "Man-eating tigers are causing great loss of life along the whole range of the Nallai Mallai Forest. There are five of them. One is said to have destroyed 100 people." "In Lower Bengal alone, in a period of six years, 13,401 people were killed by wild beasts. In South Kanara, in July 1867, 40 human beings were killed by wild beasts." The Chief Commissioner of the Central Provinces in his report shows the following terrible return of human beings killed by tigers: In 1866-67, 372; 1867-68, 289; 1868-69, 285; total for three years, 946. It appears that there are difficulties in the way of killing down these tigers. First, the superstition of the natives, who regard the "man-eating tiger" as a kind of incarnate and spiteful divinity, whom it is dangerous to offend; secondly, the failures of Government rewards; thirdly, the desire of a few in India actually to preserve tigers as game, to be shot with the rifle as a matter of sport. Mr. Frank Buckland suggests an organised destruction of the tiger cubs in the breeding season, and the attraction

of full-grown tigers to traps, pit-falls, and other devices, by means of a drug of valerian, of which tigers (which are only gigantic cats) are exceedingly fond.

The dense population of the Provinces under the Bengal Government represents a state of things in which the number of inhabitants might at any time begin to press on the means of subsistence, and emigration, when efficiently watched and regulated, is certainly a good thing. Movements of this kind are sure to take place from one Province to another within British India whenever there is a great demand for labour on the one hand, and a crowded population on the other. The tea planters of Assam and Cachar have attracted great numbers of labourers from the valley of the Ganges. Soon after the extension of tea cultivation, which commenced in 1856, the difficulty of getting labour began to be felt. In 1858 there were 400 labourers imported into Cachar from Benares and Bahar, the native contractors in Calcutta recruiting men who bound themselves to work for five years in the tea district. The evils connected with the recruiting and transit were so glaring that a Commission was appointed to consider them in 1862. The state of things then disclosed was very horrible, and Act III. (Bengal) of 1863 was passed, to regulate emigration to Assam, Silhet, and Cachar. The objects of the enactment were to make sure that the labourers understood the agreements they entered into, and to lessen the fearful mortality in the transit. Between 1863 and 1866 the deaths in the contractor's depôts and on the voyage up were more than 4,970, out of a total of 89,915 labourers recruited. The Act entirely failed in its object; and the coolies continued to be deceived by unprincipled recruiters. The mortality among the immigrants during the first years of the tea industry was appalling. From 1863 to 1866 the number of coolies that reached the tea districts was 84,195. In June 1866 there only remained 49,750; 35,165 remain to be accounted for; 3,289 were released on the completion of their engagements. The remaining 31,876 must have died in three years; want of sufficient food being a main cause of the sickness and mortality. The practice of flogging the labourers also prevailed at that time, in Cachar and Assam. When runaways were caught, they were tied up and flogged in a way which, in some instances, was believed to have caused death. As late as 1868 such cases were judicially tried, for the punishment was quite illegal. Previous to 1865 the only penalty for labourers breaking their contracts was one month's imprisonment under section 492 of the Penal Code. But by Act VI. of 1865, planters were enabled to arrest runaways without a warrant, and imprisonment was renewable for successive breaches of contract. There has been great improvement in the condition of the labourers since 1868, flogging is now unheard of, and many planters, especially in Cachar, treat their people with kindness and consideration. There are now 44,554 immigrants employed under contract in the districts, and 9,725 were recruited in 1872. Large numbers of time-expired labourers show that they are contented with their bargain by remaining, and strict rules are enforced respecting the provision of lines or quarters, of food, and of medical aid. The wages of coolies on the tea estates are five to six rupees a month. The deaths during 1872–73 were 1,504, desertions, 1,213. A bill has been introduced for the amendment of Act II. (Bengal), of 1870, regulating the transport of labourers to Assam, Cachar, and Silhet.

In the south of India a great annual emigration has long gone on from Tinnevelly and other Madras districts to Ceylon, for the coffee-picking season; and satisfactory arrangements have been made by the Colonial Government for their protection. But these Tamil emigrants usually return to their homes in India when the season is over, or after a stay of two or three years. The Government of Ceylon has recently passed an Ordinance to provide for the medical wants of these coolies on the coffee estates. It enables districts to make their own arrangements to supply their medical wants, and it empowers planters to appoint a committee to make regulations for the medical service of their district, subject to the approval of the Government. But if any district fails to make the necessary arrangements, power is given to the Government to step in and take the management into its own hands, imposing an assessment not exceeding one rupee per acre in cultivation. There were 254 vessels engaged in the native passenger trade between Tutikorin and Ceylon during the year 1872–73. Between 1843 and 1867 there were 1,446,407 immigrants to Ceylon, and 839,897 returned. In 1872–73 the number is given at 73,456 (a misprint for 13,456?); and during the year 14,000 returned to Tinnevelly. There were also 2,120 emigrants to Rangún.

In the same way the labourers of Mysor and Malabar annually go to the coffee estates on the hills of Curg and Wynaad. In British Burma there were 75,690

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emigrants and 97,679 immigrants in 1871-72. The immigrants are mostly coolies from India, who come for the high wages at the rice and saw mills, and return with the money they have saved. Many also come from Upper Burma, for employment on the embankment works.

But emigration to distant colonies is not altogether a natural process, is not caused by the spontaneous action of the people, but is brought about to a considerable extent by the persuasion of agents and recruiters. It therefore requires very close supervision on the part of the authorities in India; and accordingly the Indian Emigration Act (VII. of 1871) was passed for the protection of the coolies, and is a consolidation of all previous laws.

It was provided that the Government of any place to which emigration is lawful, might appoint a person to act as Emigration Agent at Calcutta, Madras, and Bombay, subject to the approval of the local Government; and each local Government is to appoint a proper person to act as protector of emigrants, who is not to hold any other office. The duties of the protectors are to inspect vessels, inquire into the treatment of returned emigrants, to report, aid, and advise. The local Governments are also to appoint medical inspectors of emigrants. A suitable depot for persons engaged as labourers is to be established by the agents at each port to be licensed, after inspection by the protector and medical inspector, but no license is to be in force for more than a year. Emigrants in the depôts are to be inspected at least once every week. Recruiters of labourers, who are to wear a badge, must be licensed by the protectors, and none may engage men without licenses. Contracts may be made with natives of India, to Mauritius, Jamaica, British Guiana, Trinidad, St. Lucia, St. Vincent, Grenada, Natal, St. Kitts, Seychelles, so far British Colonies; French Guiana, Réunion, Martinique, Guadaloupe, foreign territory; Dutch Guiana, and St. Croix; and the Governor-General may, from time to time, declare emigration lawful to any other place. This Act, however, was almost entirely a consolidating measure. All the more important parts of the system had been long in force.

Every recruited emigrant must appear with the recruiter before the magistrate of his district, who is to see that he understands his engagement, and is willing to fulfil it. The magistrate is then to register the name, age, and village of the emigrant in a book, with the depôt to which he is proceeding, the rate of wages and period of service agreed upon; and copies are to be forwarded to the emigration agent and to the protector at the port. The emigrant is to be conveyed to the depôt, and the recruiter is bound to provide him suitable lodging and food on the journey, and to report his arrival. No vessel may take emigrants without a license from the local Government, stating her tonnage, and the number of men, women, and children she may carry, and the protector is to cause each vessel to be carefully surveyed. The height between decks is not to be less than $5\frac{1}{2}$ feet; one adult for every 12 superficial feet of deck, and for every cubic space of 72 feet; women and children are to be apart from men, and there must be proper supplies of fuel, provisions, and water, a double blanket for each emigrant outside the tropics, a distinct place fitted up for a hospital, and a surgeon on board. No emigrant may be forced to embark, but he will incur liabilities for breach of contract. Steamers may sail at any time. Sailing ships may also leave for places east of the Cape at all times of the year, but for places west of the Cape only between the 31st of July and the 1st of March. The number of recruiters in Bengal, in 1872–73, was increased from 171 to 258.

A convention with the French Government was made in July, 1861, by which emigrants were to be allowed to be embarked for Réunion, Martinique, Guadaloupe, and French Guiana, at which places the British Government was to appoint agents; and the rules for recruiting are to be the same as those enforced for the British Colonies. The contracts are not to be for more than five years. The work is not to exceed $9\frac{1}{2}$ hours a days for six days out of the seven. Wages and rations are to be fixed. Medical treatment is to be gratuitous; and return passages are to be provided at the expense of the French Government. The proportion of women to men in each ship is to be one quarter. A similar Convention has since been made with the Netherlands Government for emigrants to Surinam. The statistics of emigration only exist from 1842. Between 1842 and 1870 there were 342,375 emigrants from Calcutta, 159,259 from Madras, and 31,761 from Bombay; in all 523,535. Of these 112,178 have returned. The largest number of the Calcutta emigrants were from Bahar (155,399), and the North-West Provinces or Oudh (100,433). Only 77,050 were from Bengal.

In 1870–71 the West India Colonies applied for 9,423 emigrants, and 7,315 were despatched; but there was great difficulty in getting the quota of 40 females to 100

males. In 1871–72, the number of emigrants who left Calcutta was 8,231, and the rule as to the proportion of females was fully complied with. The number returning was 3,383, in 11 ships; and the death-rate, either going or coming, never exceeded two per cent. In 1872–73 the number of emigrants rose to 17,171, of whom 6,087 were to Demerara, 5,262 to Mauritius, 3,850 to Trinidad, 1,562 to Jamaica, and 410 to Surinam. The number that returned was 3,314, in a satisfactory condition, but there is no complete account of their savings. Of 74 Mauritius immigrants, the remittances amounted to Rs. 42,774; and Rs. 216,106 were brought home by 551 labourers from Demerara. Rs. 14,583 belonged to one man. During the year 1872–73, five vessels went from Madras to Mauritius with 1,554 emigrants, the due proportion of females being maintained, and five arrived with 1,069 returning emigrants. Four vessels also left Pondicherry with 1,312, a decrease since last year. There is no emigration from Bombay; but 269 men and 112 women returned to that port from Mauritius during the year.

In 1869 Sir J. P. Grant, the Governor of Jamaica, made important arrangements by which the coolies are efficiently protected and cared for, and a minimum wage of 1*s.* a day for men, and 9*d.* a day for women and boys, was enforced. Hospitals have been provided by the Government at the cost of the immigration fund; medical men appointed by the Governor, or being paid out of the same source, instead of by the employer, as formerly. An Ordinance, framed after receiving the Report of the Royal Commission of Inquiry, was passed in British Guiana, in 1873, to consolidate and amend all the labour laws in that country; and it is considered desirable that it should be taken as a guide for the other colonies which receive labourers from India. The minimum daily wage is fixed at 1*s.*, as in Jamaica; there are to be six working days in the week; rations for new arrivals are to be supplied at 4*d.* a day, and for children gratis; the duties of emigration agents are defined; medical officers are made servants of the Government, and engagements made with coolies in India are to have binding force in the colonies. There are also provisions for the inspection of ships, for the indenture and schooling of minors, for securing house and hospital accommodation, and for return passages free after ten years, and for disabled immigrants at any time. The Dutch Government is pledged to give equivalent terms in Surinam. Natal emigration was suspended in 1872, owing to complaints of the treatment of coolies; but it is now provisionally resumed, as a law establishing a protectorship of immigrants has been passed in that colony.

There is a constant immigration of Chinese into India, but the male sex only come, and do not seek a permanent domicile. The immigration of Arabs into India to recruit the military service of the Nizam of Haidarabad has been interdicted; but there is a large domiciled settlement of Arabs in the Nizam's territory. The immigration from Eastern Africa requires further elucidation. No slave can be imported into British India, but there is a large influx of Africans connected with the mercantile marine. From beyond the north-west frontier of India, and the hills of Afghanistan, there is a steady annual influx and reflux of merchants and camel drivers. From the same direction aliens of the wild tribes beyond the Indus descend in thousands to seek service in the native British army, or private employment, and form an element in the floating population of the towns.

XI.

POLICE AND JUSTICE.

THE work of preserving the peace of the country, suppressing and detecting crime, and executing decrees in British India, is performed by a body of about 190,000 police constables, aided by the village chaukidars and watchmen, who have continued to occupy their immemorial positions, in most parts of the country, as a supplement, and often a very important one, to the regular police force.

In Bengal, besides 22,640 regular district policemen, there are 6,516 municipal, 2,474 Calcutta suburban, 168 river, and 486 railway police. Their drill is said to be unsatisfactory, for the Bengali, though well adapted for the work of detecting crime, is almost useless as a guard. It is suggested that the force should be recruited from among the bolder and sturdier men of Bahar. The work of the Bengal police in 1871–72, as regards criminal prosecutions, is represented by 72,817 arrests, out of which 36,813 convictions were obtained; but of 394 murders only 160 were detected. Mymensing, Báckarganj, and the Sonthal Parganahs take the lead in crime. In addition to the regular police force, there are some 200,000 chaukidars or village watchmen in Bengal. The enrolled constabulary have many duties to perform in addition to the detection of crime and preservation of order. They are used as guards and orderlies, on frontier duty in the hills, as revenue preventive officers, serving writs and summonses, and last year in carrying out the census operations. They are liable to be employed on any miscellaneous executive work, so that much, if not most, of police work falls upon the village watchmen, whose proceedings are not included in the police reports. Under the Chaukidari Act they are under the control of a *punchâyat*, selected from the inhabitants of the villages; and some particulars respecting the work they perform, and their organization, would be a very important addition to the reports. As regards professional crime, embracing thugs, docoits, and men who make a trade of poisoning and robbing, it can scarcely be said to exist in Bengal; yet, compared with the amount of actual crime, the results of convictions are reported to be petty and insignificant. In the administration of criminal justice, the high court disposes of appeals, and has cognizance of all capital sentences, of which 78 were carried into execution in Bengal during the year under review. The courts of session, aided by jurors or assessors, try cases committed by magistrates. The magistrates have power to imprison for two years, and inflict fines up to 100*l.*, and subordinate magistrates can commit for six months, and inflict fines up to 20*l.*, and whippings. 3,550 persons were flogged, or one for every eight persons imprisoned. During 1872–73 juries were employed in 447, and assessors in 1,289 cases coming before the sessions courts. Before the high court 100 cases were tried by juries. Of the criminals, nearly 37 per cent. are Muhammadans, 8 per cent. Hindu cultivators, and 6 per cent. Brahmins.

In the North-West Provinces the police force is recruited from all castes, the Muhammadans, and Brahmans, and Rájputs being in nearly equal numbers, the Muhammadans slightly preponderating. The total force numbers 82,988 men, or 27 to every 10,000 of the population. Of these 57,408 are rural police, 16,139 provincial, 9,071 municipal and town, and 378 railway. During the year under review food was dearer than usual, and there was a consequent increase of crime; the increase being chiefly in petty thefts: and the same thing is reported from Oudh. In Gorakhpúr, when the price was 19 seers of wheat for a rupee, the prisoners numbered 556, and the number rose to 727 when only 11 seers could be had for a rupee. The result of this comparison is that 16 seers the rupee should be the minimum rate, and fall below which drives the poor into crime. A comparison of the jail population with the prices of food grain shows the connection between crime and distress. Taking three districts of the Benares division: in Ghazipúr, when 16 seers of wheat could be bought for a rupee, the jail population was 408; when only 12 could be bought for a rupee, it was 548. In Basti, when wheat was 19 seers the rupee, there were 270 inmates of the jail; when it was 10 for a rupee the prisoners numbered 282. Increase of market prices is a perfectly just excuse for the increase of so-called crime. The increase in reported cases of burglary is said to be due to increased efficiency of the police. They obtained 20,040 convictions, or 68·9 per cent. of the accused, against 69·5 in the previous year. 4,652 persons were flogged, of whom 780 were boys; and there were 74 capital sentences confirmed. The village police in the North-West Provinces have been re-constituted; hitherto they have generally been paid by grants of inferior land, as jagheers, and sometimes in

grain or money. They now receive regular wages of three rupees a month, in addition to their ancestral perquisites, paid by the cultivators from the threshing-floors. The chaukidars are also housed and uniformly clothed, and a great improvement is reported to have been effected in their efficiency.

Two duties of special interest are intrusted to the police of the North-West Provinces, namely, the supervision of the hereditary thieves, and the suppression of infanticide.

Various tribes in the Punjab, the North-West Provinces, and Oudh carry on theft and robbery systematically. They live quietly for part of the year in their own districts, and spend the rest in wandering about the country to rob and plunder, the gains being divided according to a fixed rule. In the North-West Provinces there are 29 tribes who support themselves in this way. In October, 1871, an Act was passed (XXVII. of 1871) empowering the Government to declare a tribe criminal; a register is then to be made of its members. The criminal tribes may be removed and formed into reformatory settlements, and any member of them found beyond prescribed limits may be arrested. Under the provisions of this Act, two colonies were formed in the North-West Provinces, one of a tribe called *Bowrias*, in Muzaffarnagar, and another of *Bhudduks*, in Ghorukpur. To these have been added, during the year under review, the Bowrias of Bedauli, and the Habúrahs of Etah. Land is given to them at low rates, and every inducement is held out to them to lead an honest life, while every member is placed under rigorous police supervision.

The measures for the suppression of infanticide are enforced under the provisions of Act VIII. of 1870, by means of the police acting under rules published in March, 1871. The crime of infanticide can be put down by accurate registration of all domestic events among proclaimed families, combined with frequent inspections of female infants by the village police. It is held that where the number of girls is less than 35 per cent. that of the whole number of children there must be foul play, and a suspicion of guilt becomes justifiable. The census returns have been utilised for the purpose of detecting the low percentages of girls among the suspected tribes of Rájputs and Jats. The head of a proclaimed family is obliged to report all births and deaths to the police, and, if foul play is suspected, the bodies are forwarded to the civil surgeons for post-mortem examination. The police officers visit proclaimed villages once a month, and compare the actual numbers in each family with their registers, annual reports being furnished to the magistrates. As many as 4,957 villages, with a population of 485,938 souls, in 25 districts, have already been proclaimed as having their percentage of girls below the prescribed limit; and the rules of repression have been applied. The crime of infanticide is unknown in five of the North-West Provinces (Dehra, Kamaun, Garhwal, Goruckpur, and Lullutpur), but in others it is very prevalent among different classes of Rájputs and Jats. Much good has already been done, girls are beginning to survive in numbers which accord with the laws of nature, the people are, it is believed, becoming ashamed of the crime, and seem to be glad of an excuse to drop it. The power of imposing the cost of repression of the guilty tribes has been very sparingly used, but where an extra force of police is required, a cess has been imposed of eight annas a year on every house. Although the tax is small, it is most unwelcome, and acts as a further stimulus to the people to abandon their ancestral crime. In the suspected villages the registered number of births of boys was 8,756, and of girls 8,794; and of death under 1 year, 1,745 boys and 1,937 girls. Out of 1,050 inquests and 634 *post-mortem* examinations, there were 57 suspicious cases, of which 22 were brought to trial; in 16 there were acquittals from want of proof, and in 5 convictions were obtained. The increase of female children, and the proportion they bear to male children, is due to this direct action among families where, but for the Infanticide Act, at the least half these lives would have been lost. Although some very startling figures in the last Oudh Administration Report turn out to be mistakes made in copying the returns, still the proportion of males to females among the Rájputs of Oudh is greater than among the rest of the population, which is tolerably clear evidence of guilt. Instead of its being 100 to 97, as among other castes, it is 100 to 88.*

In the Bombay Presidency there was suspicion of the crime of female infanticide against two castes in Ahmadabad and Kaira. Compulsory registration was, therefore, introduced among them in September, 1871, and their marriage expenses were fixed within certain limits by stringent and penal rules under Act VIII. (Bombay) of 1870. This measure has worked well, and the people seem to have made voluntary

* See page 117.

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arrangements to remove the motives for murdering their daughters. These consist of combinations among the inhabitants of villages of the same standing to intermarry, parties arranging to give and take daughters in exchange as wives for their sons, free of all expenses, except such as are borne equally by the contracting parties. There are also agreements with native chiefs in parts of the Bombay Presidency where infanticide is suspected, providing for registration and inspection. Funds are also established to aid indigent parents to meet the expenses of their daughters' marriages. The population under surveillance in these native States numbers 44,188, of whom 24,409 are in Kattiawar, and 16,195 in Kách. In the latter State the returns look very bad, the percentage of male to female deaths under one year of age being 26 to 43 !

The causes that give rise to the crime of infanticide are very obscure. It has been ascribed to ancestral pride and to poverty; but, on the one hand, it is practised by the poor and base-born castes, and, on the other, by the rich and well-to-do Rájputs and Jats. Moreover, the Jats and Tugas receive, and do not pay, dowries on the marriage of their daughters, yet they also practise infanticide. Possibly the crime is mainly attributable to hereditary custom and habit, in which case its total eradication will not be difficult, now that active measures have been adopted. The measures taken in the Bombay Presidency show that it is there considered to be due to the marriage expenses of daughters.

In the Punjab, under Act V. of 1861, the police force is divided into Trans and Cis-Sátlej divisions, the whole numbering about 20,000 men, of whom 53 per cent. are Muhammadans, 29 Hindus, and 17 Sikhs. Out of 358 murders there were 140 death sentences, an improvement in the number of convictions over the previous year. In Oudh and the Central Provinces the police force has been organised under Act V. of 1861, and its strength, under these two Governments, is 4,898 and 7,379 respectively, exclusive of municipal and railway police.

In the Bombay Presidency the new police system consists in the creation of a distinct and complete executive for police purposes, the Police Commissioner in each division being also the Revenue Commissioner. The pay of a constable is fixed at seven or eight rupees a month, and he cannot receive promotion unless he can read and write. The railway police was organised by the Government in 1866. By Act II. of 1871 the Government is enabled to call upon municipalities to contribute to the cost of the police to the extent of one-half, but this power has as yet only been put in force at Surat and Ahmadabad. Crimes are increasing, and convictions bear a small proportion to them, only 39 per cent. being convicted. There were 68 capital sentences confirmed, against 66 in the previous year. Most of the murders take place in Tanna. In Kanara there was only one.

The village police, under the control of the magistrates, is composed of the old mahars or watchmen in the ancient village system of the Mahrattas. The mahar was the 10th in order of the Bara Balúta, or body of village officials, of whom the patel is first, and has supervision of all revenue and police matters. The mahar is immediately under the patel, or head man of the village, and the ancient mode of remunerating him was by a grant of rent-free land. The reform of the village police is now under consideration, with a view to introducing a better and more adequate system of remuneration, such as has been adopted in the North-West Provinces, but the necessary statistics of the strength of the village police are not yet available. The duties of village policemen are to keep order, to report crime, and to assist the regular police.

Two bodies of police are still maintained in the Bombay Presidency with semi-military organisation, namely, the Khandesh Bhíl Corps of 840, and the Gujrát Bhíl Corps of 503 men. The Bhíls were the aborigines of Khandesh, a fierce mountain tribe, dwelling among steep rocks and pestilential jungles, whose profession was robbery. They were the object of mingled terror, contempt, and detestation to the people of the plains, and in their sudden forays they spared neither age nor sex. In 1818 Khandesh was ceded to Great Britain, and in 1826 Mountstuart Elphinstone conceived the idea of establishing the Bhíls in agricultural colonies, and organising a Bhíl regiment. The agricultural colonies were confided to Captain Ovans; to Lieutenant Outram was assigned the dangerous task of disciplining these lawless barbarians, while Mr. Willoughby established peace and order among the wild Bhíls of Rajpeepla. Outram commenced by attacking the Bhíls in their fastnesses, at the head of a small detachment, and compelled them to sue for mercy. Having convinced them that their rocky defiles were not impregnable, he sent back his troops, and, throwing himself among his recent foes, unarmed and unattended, he claimed

and received a reciprocity of the confidence thus reposed in them. He accepted their hospitality, listened to their wild legends, taught them many simple mechanical devices, dressed their wounds, prescribed for their ailments, accompanied them in the pursuit of tigers, and won their admiration by showing his superiority in those very qualities which they most valued in themselves. In less than a year he had formed a Bhíl corps which, when Outram gave over its command in 1835, consisted of 600 well-disciplined men. The two Bhíl corps are still continued, to maintain the peace of the country, and give employment to a naturally restless people.

In the Madras Presidency the police force consists of 22,018 men, besides the police watchers; but, as in Bengal, the regular policemen are also employed on the salt preventive and excise establishments, and as gaol guards. In Mysore there are regular police under Act V. 1861, introduced into Bangalore in 1866, and village police restored to efficiency, with concession of magisterial powers in petty cases to the heads of villages. The force numbers 6,440 men. In Burma there are Imperial and municipal policemen. The percentages of the convictions among cases tried is a test of the efficiency of the police. In Oudh it was 61·8 per cent.; Punjab, 51·7; Madras, 41·9; Mysore, 51·7; Bengal, 59·5 per cent.

Since the introduction of railroads, the formation of numerous plantations under European management, and the increase in facilities of communication, a new class has sprung up which has caused some anxiety. European vagrants or "mean whites" have begun to spread over the country, and are increasing in numbers. A Vagrancy Act was passed in 1869 (Act XXI. of 1869), which was intended to grapple with this evil, and it has been acted upon in all three Presidencies. Government workhouses have been established at Calcutta, Madras, and Bombay. In Calcutta the workhouse is in the Presidency Gaol. In 1871–72 the number of vagrants arrested and transported under the provisions of the Act, in Bengal, was 67. It is not given for 1872–73. In Madras the Vagrancy Act is stated to have put down begging in the towns; but it has created a class of voluntary vagrants who go to the Government workhouse on their own representations, where they are clothed and fed. The cost connected with them in 1872–73 was 809*l.*, including passage-money for those who were deported. There were 62 cases in the year. In April, 1871, a shed was erected in the new house of correction at Bombay, to serve as the Government workhouse; and in 1872–73 as many as 248 vagrants were admitted. Some were arrested up country, along the lines of railway, and the rest in the town of Bombay. They were nearly all hale able-bodied men, able to work, and the cost of feeding and clothing them was 604*l.* The daily average of workhouse inmates at Bombay was 32 for the year.

The gaols throughout India are generally in a satisfactory state; discipline is preserved, industry is enforced, and to some extent instruction is given, while much care and thought has been devoted to the sanitary arrangements. Indeed, the Lieutenant-Governor of Bengal considers that almost too much attention has been given to industrial and sanitary considerations, and that the penal effect of imprisonment has been more or less lost sight of. He thinks that the punishment of short-term prisoners is not sufficiently stinging, that the prisons are made too comfortable, while classification scarcely exists, partitions having been almost universally cleared away for the sake of ventilation. The district gaols have been placed immediately under the control of the magistrates; but there is no gaol of this class in Bengal that can be looked on as a model, or that can be recommended for imitation as based on scientific principles. Standard plans have, however been drawn up for gaols of different classes by the new Inspector-General, Mr. Heely. His predecessor, Dr. Mouat, worked a great improvement in the health, habits, and discipline of the Bengal gaols. There are seven central and 54 district gaols, and 87 lockups, and the number of prisoners during the year was 20,489. Gaol labour is divided into *penal*, consisting of treadmill, stone breaking, and lime and flour grinding; *hard*, including excavation work, drawing water, cutting wood, and blanket weaving; and *light*, such as tailoring, dyeing, weeding, garden work, and writing. Penal work is given to three months' prisoners during the whole time; for prisoners for 18 months during half the time; and for long term prisoners only as a punishment. The percentage of gaol mortality was 5·19, there being 1,063 deaths. The total gaol expenditure was 113,307*l.*, besides 53,887*l.* the cost of the manufacture department. The receipts from manufactures were 87,756*l.*, those at Alipur gaol being particularly remunerative. The Alipur gaol jute mills yielded a profit of 18,150*l.*, and the gaol press 9,422*l.*

In the North-West Provinces there are six central gaols for long-term prisoners,

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33 district gaols, and 22 lockups. During the year under review, 44,349 prisoners were confined, and 24 per cent. were employed on manufactures. The cost of the gaols was 69,580*l.*, and the profits from gaol manufactures 8270*l*, against 7206*l.* in the previous year. The gaol death-rate was 4·43 per cent.

In the Punjab there are 34 gaols, of which six are central and divisional, and the remaining 28 district gaols. The number of prisoners confined was 42,571, but the daily average only came up to 13,536. The profits from gaol industry amounted to 29,975*l.*, but this is made to include value of labour, not only on public works but also in the performance of gaol duties. The expenditure was 74,559*l.* The gaol death-rate was 3·5 per cent. A ticket-of-leave system has been introduced, by which prisoners who have served three-fourths of their time are selected, on account of good conduct, and admitted to special privileges of probation, eventually being allowed to return home under surveillance. There were 30 of these ticket-of-leave men in the first stage of their probation, twelve in the second, and twenty released.

In Oudh there are 13 gaols, with a population of 20,167 prisoners. The death-rate was 3·8 per cent.

In the Central Provinces the gaol accommodation is ample, consisting of two large central gaols for long-term prisoners, and district lock-ups. The number of prisoners in 1872 was 9,737. They are employed on public roads, in grinding corn, and making prison clothes, and on manufactures. The Jabalpur school of industry was established in 1837, to give employment and instruction to Thug and Dacoit prisoners and approvers, whom it was desirable to keep under surveillance. It is now purely an industrial establishment, as the Thug and Dacoit convicts have been removed to the central gaol. Now only the approvers (of whom there are 125 Thug and 177 Dacoit), with their wives and families, continue to work in the school. The total number working in the school is 759, and the profits 1,800*l.* The institution is famed for its tent-making.

In the Bombay Presidency, 20,747 prisoners were confined during the year 1872. This is an increase on the preceding year. The number of executions has steadily increased for the last five years, and there were 62 in 1872. The number of deaths among prisoners was 196. The net profits of gaol factories was 3,195*l.* In the Madras Presidency the total number of gaol prisoners was 23,441, and the daily average 9,376. The total value of gaol labour was 37,924*l.* The cost of the gaols was 53,497*l.* There were 199 deaths, the death-rate being 2·2 per cent. In Mysore there are 8 gaols and 84 lock-ups. The death-rate among 5,927 prisons was 1·02 per cent. In British Burma there are two central gaols, at Rangún and Mulmein. It is intended to introduce jute spinning and weaving into the Burma gaols.

The health of most of the gaols in British India was good, and the death-rate low as compared with the rest of the population. The inmates have sufficient food to preserve health, which is not the case with the labouring poor outside the gaols in many provinces of India. The average death-rate in the gaols throughout India was 3·38 per cent. of the inmates. In Bengal the mortality was serious in particular gaols owing to local outbreaks of disease, and the percentage was high, 5·19 per cent. In the North-West Provinces it was 4·43, in Oudh 3·8, in the Punjab 3·5, in Madras 2·2, and in Mysore 1·02.

The penal settlement at Port Blair, in the Andaman Islands, contained 7,239 convicts. They are under three systems, a cumbrous and complicated classification, which will shortly be simplified. The "Straits System" was introduced by Colonel Mann in 1871, and 4,592 convicts are under it. It divides them into six classes. The 1st class consists of ticket-of-leave men who support themselves and are no charge to the State. The 2nd class is formed of writers and others employed by Government. The 3rd class comprises convicts who receive clothing and rations and a gratuity of 2 rupees a month for men with more than 5 years' service, and 1 rupee for over 2 years. The 4th class men work in light irons but have no gratuity. The 5th class consists of the chain gang who work in heavy irons inside the gaol and have no indulgences, and the 6th class consists of invalids and superannuated convicts who have light labour. The "New System" was introduced in October, 1871, and 1,183 convicts are under it. In it there are three classes: convicts after 14 years' servitude, who obtain tickets-of-leave and are allowed to marry; those after 7 years' who receive small gratuities and may send for their families; and all convicts on first arrival, and for the first 7 years, who are worked in gangs and receive no indulgence. The third system is the old one including 1,593 convicts who receive gratuities, clothing, and subsistence. When all are under the new system, Port Blair will be a disagreeable place of residence for people who dislike regular hard work

under circumstances of considerable restraint. The convicts are quartered in open barracks, under petty officers selected from their own body, who form a convict police. During 1870 there were 160 escapes, of which 100 were by sea and 60 by land. Of the 60 land fugitives 44 were recaptured, and the rest probably died. Out of 100 who got away in boats, 34 were from the Nicobar settlement, and 47 were retaken. There are 460 convicts employed on boat work. The most audacious case of escape was one from Camorta, the Nicobar settlement. The chief of the convict petty officers managed to disable the only two boats that could be sent in chase, and then got away with 17 convicts, in the remaining boat, in presence of the police. The party reached Achin in Sumatra; but the Sultan gave up the boat and 14 of the fugitives. The petty officer escaped. There are 910 married convicts, and 88 marriages took place in 1872. There are schools for the children of convicts. There is little crime in the settlement, beyond numerous cases of petty theft, and the sanitary condition of the place is satisfactory. The labour is devoted to clearing jungle, cutting up timber, and making bunds and tanks. There is an area of 900 acres under cultivation, 500 belonging to ticket-of-leave and self-supporting convicts, and 400 to Government, the crops consisting of Indian corn, paddy, and pulses, while the "Royal Dover Garden," commenced in 1868, occupies 357 acres, covered with guinea grass, plantains, fruit and spice trees. The expenditure on the Port Blair settlement for 1872–73 was 97,104*l*. There is another penal establishment at the Nicobar Islands, where there are 239 convicts, near a large swamp, which makes the place very unhealthy.

In the North-West Provinces, litigation reached the highest figure of any year since the mutiny, and there is also a great increase in the value contested. The total value of property in dispute was 2,147,528*l*. In Oudh the number of civil suits has doubled in four years; and the reports observe that under our rule there is a progressive proneness to civil litigation. There was, in 1872–73, an increase of 7,160 over the previous year. The sales of houses and lands bear a large proportion to the total number of processes, and in many cases there is failure to realise the amount decreed against the debtor, because he is absolutely devoid of means, already wrung dry. In the Central Provinces the number of suits decreased from 76,092 to 71,812. In the Bombay Presidency litigation is most active in Thana and Khandesh, the majority of suits being for debts on written contracts. Exclusive of those in the city of Bombay, there were 179,145, valued at 1,443,364*l*.

Registration of deeds and other documents in India is of two kinds, compulsory and voluntary. To the former class belong deeds having reference to land. In Bengal about 250,000 deeds are annually registered, but the great majority are contracts, the registration of which is compulsory; and documents which it is not obligatory to register only numbered 67,130 in 1872–73. This is a mere drop in the ocean, compared to the whole transactions of the people, and the registration agency does not touch the mass of the business of the country. Sir G. Campbell proposes to appoint Muhammadans of position and learning as registrars of marriage contracts and other deeds used by that community, and he has commenced a system of rural registration. The number of wills registered in Bengal has increased from 934 last year to 1,209, a fact pointing to a revolution in the ancient property law of India, which is gradually being superseded by the English doctrine of freedom of testamentary dispositions.

In the North-West Provinces and the Punjab the Tahsildars are registrars, and the registry districts are the same as those for revenue and police purposes. The number of documents registered in the North-West Provinces was 144,772. The number of documents registered in the Punjab was 84,323. A compulsory registration of decrees of civil courts was abolished, for which optional registration of certified copies of decrees and orders was substituted. In the North-West Provinces there was an enormous increase in the registration of deeds for the sale or mortgage of immovable property; from 86,464 to 102,699. This is an alarming sign; but it is uncertain whether the increase is in deeds executed or in deeds brought for registration; and whether, if the former, the increase is due to the poverty and embarrassment of the landed classes, or to the rising price of land, tempting men to sell. In Oudh, the Registration Act only came into force in July, 1871; and in 1872–73 there were 13,267 compulsory and 33,934 voluntary registrations, of which 139 were wills In the Bombay Presidency there has been an increase in the registrations of documents generally from 84,388 to 90,361; and of wills from 279 to 404. In the Madras Presidency and in Mysore there is a steady growth in the number of documents registered. In Madras the number was 190,247, an increase of 35,966 over

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last year. The Acts referring to registration are XX. of 1866, and VIII. of 1871. As regards the cost of this system of registration, it appears that the management is more economical in the North-West Provinces than elsewhere. There the proportion of expenditure to receipts from fees, &c., is 56·8; in Bengal it is 75·2; in Madras 70·9; in Bombay 93·5; in the Punjab 58.

XII.

EDUCATION.

THE education of the people of India is based on the system inaugurated by Sir Charles Wood's Despatch of the 19th July, 1854, the objects of which were two-fold, to provide first-class education for the wealthier classes, and instruction for the masses of the people. The main principle of the Despatch is that European knowledge should be diffused through the medium of the languages which are alone understood by the great mass of the people; that education in India should have for its object the diffusion of the improved arts, science, and philosophy of Europe very widely among the people; but that the teaching of English should always be combined with careful attention to the study of the vernacular languages. At the same the importance of studying English was fully recognised, and there was no wish to diminish the opportunities which were afforded in special institutions for the study of Oriental literature.

With a view to attaining these objects it was first ordered that education departments should be created in every Presidency and Governorship, with inspectors to report upon the colleges and schools supported and managed by Government, to conduct the examinations, and to aid the schoolmasters by their advice. This admirable machinery is now in full working order throughout India.

A complete scheme was then laid down for the higher education of the wealthier classes. It was declared that the time had arrived for the establishment of universities in India, conferring degrees, and based on the model of the University of London. They were not to be places of education, but to test the value of education obtained elsewhere, and to confer degrees in arts, law, medicine, and civil engineering. All colleges and schools capable of supplying a sufficiently high order of instruction for candidates at the university examinations were ordered to be affiliated to universities which were to be established at Calcutta, Bombay, and Madras. At that time there were five Government colleges in Bengal, besides the Sanskrit College and Muhammadan Madrasa at Calcutta; five in the North-West Provinces, including the Rurki Civil Engineering College; the Elphinstone Institution, Poona College, and Grant Medical College in Bombay, and the High School at Madras, besides certain missionary schools. These were named in the Despatch as adapted to become affiliated colleges of the universities. Below them the zillah or middle-class schools were to prepare for the colleges and for the entrance examinations at the universities. The system was to be tied together, and, as it were, rendered homogeneous, by attaching scholarships, leading the best pupils up from the zillah schools to the colleges, and thence to university degrees. With the object of combining with the agency of the Government the aid which could be derived from the exertions and liberality of private persons or societies, a system of grants-in-aid was adopted, in order to bring all private schools within the scheme. It was hoped that far more rapid progress would follow from thus encouraging private efforts, while fostering a spirit of self-reliance, itself of no mean importance to the well-being of a nation. The grant-in-aid system was to be based on entire abstinence from interference with religious instruction conveyed in the assisted schools; and this principle has led to considerable assistance and encouragement being given to missionary schools of all denominations.

This was the scheme for securing the first object laid down in the Despatch. But it was intimated that as regards the upper classes the Government should not go further, and that an artificial stimulus should no longer be necessary to create a demand for such an education as is conveyed in Government colleges. These colleges and the universities were as much as the Government could do, to place the benefits of education practically before the higher classes. Indeed, the Despatch went further, and looked forward to the time when any general system of education, entirely provided by Government, might be discontinued with the gradual advance of the system of grants-in-aid, and when the existing Government schools and colleges, especially those of the higher order, might be closed or transferred to the management of local bodies aided by the State. This would have the effect of placing the highest class of education almost entirely in the hands of the missionaries.

The second object of the Despatch was considered still more important. It was to convey useful knowledge, suited to every station in life, to the great mass of the people who cannot possibly obtain it by their own unaided efforts. The Government

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of India was desired to take active measures in future, with this object in view, for the attainment of which a considerable increase of expenditure would be sanctioned. There should be schools using English as a chief medium of instruction in every district in India, as well as others of inferior order conveying instruction through the vernacular, subject to constant inspection, with the inducement to scholarships at higher schools, as a means of encouragement to the pupils. Lastly, efforts should be made to extend the system of indigenous schools, such as Mr. Thomason had established in the North-West Provinces some years before, capable of imparting elementary knowledge to the great mass of the people, with scholarships to places of higher education as rewards. Grants-in-aid were also ordered to be given to girls' schools, and to special institutions, and orders were given for the establishment of training schools for masters and mistresses in each Presidency, recruited from pupil teachers. In admissions to the public service it was ordered that preference should be given to educated men.

This is the main outline of the system of education which now prevails throughout India. It is based on the Despatch of 1854. Steps were taken at once to carry out its orders. Directors of public instruction were appointed with a staff of inspectors and sub-inspectors in all three Presidencies. The three universities were created, with chancellors, vice-chancellors, and senates as governing bodies, conferring degrees in arts, law, medicine, and civil engineering, and with the same scheme of examinations. These consist of an entrance or matriculation examination, a first examination in arts, an examination for the bachelor's degree, and honours for master's degree. At Calcutta the first entrance examination took place in March, 1857, when 162 candidates passed, and the first degrees were conferred in 1858. At the Bombay University the first entrance examination was in October, 1859, and at Madras in the same year. The colleges and high schools enumerated in the Despatch were affiliated to the universities, and some of them were remodelled. The zillah or Anglo-vernacular schools were expanded and improved through grants-in-aid, and normal schools were established. All this had been accomplished by the end of 1859; but the more important work of bringing instruction within the reach of the masses has made slower progress. This could not be effected by grants-in-aid, and required active assistance and support from the Government.

Regular progress has since been made in all parts of India in advancing and promoting the education of the people, mainly on the principles laid down in the Despatch of 1854.

In order to obtain a clear view of the progress of education in India, it is proposed to deal with the various classes of schools referred to in the Despatch of 1854 separately. Their usefulness and influence affect different classes of the community, and, although they form parts of one homogeneous scheme, and are, to some extent, linked together by scholarships, it is thought that the most lucid way of dealing with the subject will be to glance at the condition and progress of each class over all India, rather than to give a general summary of the educational work of each province. On this plan the sketch will begin with primary education, reviewing the work done as regards the establishment of village schools and the instruction of the poorer classes throughout British India; then an account will be given of the middle-class schools, which give a somewhat higher education; then of the high schools which prepare for the entrance examination at the universities; and lastly, of the colleges where training is given for the higher university examinations.

In Bengal there were always *patshalas*, which in 1871-72 numbered 2,719, aided by Government. They are indigenous rural schools where the vernacular is taught, the course including elementary arithmetic, bazaar accounts, reading and writing. There are also *muktabs* where the kurân is taught, and *fôls*, in one or two districts, for instruction in Sanskrit and the Hindu sacred books. The *Guru*, or ordinary village schoolmaster, gets about 5 rupees a month from fees, and the numbers at a *patshala* vary from 10 or 12 boys to 50 or 60. About ten years ago a system began of aiding the *patshalas* by forming them into circles of four each, with a trained teacher over them to visit and direct the teaching of the schoolmasters, but the funds were stopped by the Supreme Government, and local taxation was suggested, a course which was not then adopted. The chief educational feature of the year 1872-73, in Bengal, has been the successful introduction of a new scheme for the establishment or aiding of the *patshalas* or village schools. In the end of March, 1872, there were only 2,719 of these schools. By the end of March, 1873, there were 8,636, teaching 215,411 pupils at a cost of 19,428*l.*; but the additional grant of 1873-74 will bring the cost up to 53,000*l.* By August, 1873, there were 10,787 *patshalas*, with 255,728

pupils, and there has since been a further increase. Thus a simple plan of primary instruction has now been started in every district. In some places prejudices had to be overcome, in others the people took to the schools with avidity from the first; but, especially in Bahar, there has been a disinclination to pay fees to the *Gurus* or village schoolmasters. Sub-inspectors, on low salaries, have been appointed to supervise the new schools; and there are grants-in-aid in the form of allowances to the *Gurus*, ranging from Rs. 2 8 ans. to Rs. 5 a month. In Midnapur there is a system of payments by results, with periodical examination, which may work well in districts where village schools are numerous. In some of the middle-class schools the lowest classes are receiving the same instruction as is given in the *patshalas*, and, adding these, the number of children receiving primary instruction in Bengal is now 353,300.

In the North-West Provinces Mr. Thomason, the Lieutenant-Governor, ably assisted by Mr. Reid, in 1845 developed a scheme for supplying schools for the rural population. A system of circle schools was introduced, called *Halkabandi*, by grouping several villages together, and establishing a school in a central position, no village being more than a mile from it. There are now 3,630 village schools in the North-West Provinces, with 130,981 scholars. The prospects of this class of schools are very encouraging, owing to the greater expenditure upon them, due to the introduction of the local cess in the new settlement, and to the average cess in permanently settled districts, under Act XVIII. of 1871. One-half of the former, and a part of the latter, are set aside for the education of the taxpayers, to be spent in the district. The *Halkabandi* teachers get from 10*l.* to 11*l.* a year, and give instruction in the vernacular (Urdu or Hindi) history, geography, and arithmetic. Some also teach Persian. These village schools are raising in number and importance, and are becoming more uniformly spread over the province, through the action of the new system of local taxation. There are also 4,609 unaided vernacular schools.

The village or primary schools in the Punjab number 1,046 Government, and 188 aided, the former with an average daily attendance of 51,251, and the latter of 20,825. In Oudh the number of village schools is 758, with 5,460 pupils, and there is now a Government or aided school within 4½ miles of every child in Oudh. In the Central Provinces the number of Government primary schools is 842, with 45,595 pupils, besides 559 receiving aid, with 28,612 pupils. In the Berars there are 326 primary schools, with 7,233 pupils.

In the Bombay Presidency the vernacular or village schools are mainly supported from one-third of the 1 anna cess on every rupee of land revenue, levied under Act III. (Bombay) of 1869, aided by a Government grant of 20,000*l.* There are 3,595 of these schools, with 182,147 pupils, besides unaided indigenous schools. They range from mere village schools up to middle-class town schools preparing for second-class certificates for the public service. In the city of Bombay the vernacular schools are aided by a municipal contribution of 1,000*l.*, and a grant from the Government. Some of the vernacular schools have English classes and their pupils number 4,791; the second class, not giving instruction in English, have 140,765 pupils. The best vernacular schools teach up to a standard required from candidates for the public service, and there is an annual examination held by Committees appointed for each district. In 1872-73 the number that passed was 540, an increase of 150 over the previous year. Owing to the irregular attendance of boys belonging to the working classes, night schools have been established in the Bombay Presidency. There are now 93, with 3,000 scholars, some of which have been successful, while others are doubtful. The ratio of daily attendance to the whole number of pupils is in the vernacular schools 76, and in the night schools 66.

In the Madras Presidency there are 6,190 primary schools, with 149,081 pupils. By Act VI. (Madras) of 1863 rate schools were authorized where the inhabitants would rate themselves for the purpose, and the Act gave legal sanction to the collection of a cess. But this measure led to no satisfactory result. The people did not respond. In Act IV. of 1871 it was provided that local funds raised under it should be applicable (amongst other things) to education. Between 1871 and 1873 there were 323 such local fund schools established, and supported by a house-tax in a corresponding number of villages or group of villages. But the tax proved to be very obnoxious to the people, and was, therefore, suspended at the commencement of the year 1873-74, leaving the education wants of the poorer class to be provided for from general local funds. The system of grants-in-aid from results is now to be extended to primary indigenous schools, and there are 76 inspecting schoolmasters engaged on this work.

In 1868 Mr. Rice, the Director of Public Instruction, drew up the present scheme for primary education in Mysore. It was that in each *hobli*, or subdivision of a taluk or district, a school should be established; the area of each *hobli* being 41 square miles, and the population 6,040. The teachers are trained in the normal schools. There are no fees in the *hobli* schools, as they are maintained by a cess of 1 per cent. on the land revenue, but the people are expected to build or provide premises as an earnest of their desire for the schools. There are now 534 of these schools, besides 94 taluk schools, altogether 628 primary schools with 15,227 scholars. They are very popular, and the interest felt in them by the people is shown by their eagerness to build or rent suitable premises. Night schools, on the principle of those in the Bombay Presidency, have been established in Mysore. In Curg there are 29 Kanarese *nad* schools (*nad* being the equivalent to the Mysore *hobli*), with 1,376 pupils.

The total results of the efforts, commenced in about 1854, to supply elementary instruction to the children of the poorer, and especially to the agricultural classes in British India, is that in 1872–73 there were (exclusive of native States and British Burma) 30,477 primary schools, with 963,000 pupils.

In British Burma the primary schools are divided into two great classes, indigenous and missionary. The first include those kept by monks, which, by the rules of monastic discipline, are open only to boys, and those kept by laymen where boys and girls are taught together. There are about 4,000 monastic schools, educating 44,400 boys, and 350 lay schools, with 3,850 male and 1,250 female pupils. Of the missionary societies, the Baptists have 178 primary schools, 19 of which are for Burmese, with 690 pupils, two are Shan schools, and 157 are Karen, educating 3,660 children. The Catholic Mission has ten Karen schools, and one Burmese girls' school. There are also primary Burmese girls' schools connected with the Society for the Propagation of the Gospel. Thus there are 192 missionary schools, educating 4,777 scholars, and the number of indigenous schools is 26 times as great as that of missionary schools for primary instruction.

The middle-class schools, as a rule, supply education for the town, as the primary schools do for the rural population. Some provide instruction in English, in others all teaching is in the vernacular. Their classes commence with the earliest rudiments, so that they combine primary education with a higher standard in their upper classes. In Bengal there are 1,374 Government and aided schools of the middle class, with 66,545 pupils. Of these 432, with 22,038 pupils, have English classes, while 1,942, with 44,507 pupils, are vernacular. The middle-class schools are those which receive most support from the people themselves; the yearly cost to a boy in a Government middle-class school in Bengal is Rs. 11 12 ans., and in the aided schools, *Rs.* 16. 3a.

The *Tahsili* schools of the North-West Provinces are equivalent to the middle-class schools of Bengal. In 1845, when Mr. Thomason first began to provide a system of general education for the people, there were 736 indigenous schools in the North-West Provinces, with 6,433 pupils. He determined to establish a school at the head-quarters of every Tahsildar, and his plans were fully carried out. There are now 226 Tahsili schools, with 13,515 pupils. They do not teach English, but most of them give instruction in Persian as well as in the vernacular. The municipalities in the North-West Provinces have accepted the principle that the education of the poor in their towns devolves upon them, and they have voted suitable funds. In the Punjab there are 12 Government middle-class schools, and 56 aided by grants of money. Of these, 24, with 2,272 pupils, have English classes, and are called Anglo-vernacular; the others number 97 Government, with 9,834 pupils; and there are also 10 aided schools of the former, and 46 of the latter class, In Oudh there are 217 schools of this class; in the Central Provinces 48 Government middle-class schools, with 1,878 pupils, and 16 aid, with 1,486; and in the Berars 50, with 3,268 pupils.

In the Bombay Presidency there are 176 of these middle-class schools, with 16,612 scholars, intended as preparatory to the high schools. They also train candidates for the lower grades of the civil service. These schools have been much improved by means of municipal contributions which have provided for better qualified teachers. The average ratio of daily attendance compared with the whole number of pupils is ·8. The number of certificates given to middle-class school candidates for the public service was 227 in 1872–73, against 138 in the previous year; and to these must be added the matriculations, which of course also qualify for Government employment. In the Madras Presidency there are 503 middle-class schools, with

28,262 pupils, nearly the whole of which are private establishments, with grants in aid. The Government merely has 16 hill schools in Ganjam, and five special Muhammadan schools, besides the Lawrence Asylum at Utakamund, with 324 boys and 68 girls. In Tinnevelli, where there are no Government schools, the whole field being given up to two Anglican societies, there are 484 middle-class schools. In Mysore there are 6 Government middle-class schools with 237, and 9 aided with 629 pupils. In Curg there are four middle-class Anglo-vernacular schools.

As the primary village schools supply instruction to the children of the poorer agricultural classes, so the middle-class schools provide for the education of the children of shopkeepers and other dwellers in towns, and for that of the young men who fill the lower grades of the public services. There are, in British India, 2,506 of these schools, with 144,538 scholars.

In British Burma there are 19 Government and aided middle-class schools, educating 1,630 pupils. Of these schools six are Government, and the remainder aided. English is taught in all of them. Three Karen middle-class schools are intended to train masters, but students are not obliged to enter on the understanding that they will become teachers.

Next come the high schools, which educate up to the standard of the entrance or matriculation examinations at the universities, and in which English is not only taught, but is the medium of instruction. There is one of these at the head-quarters of every district in Bengal, and one attached to every college. The total number of high schools in Bengal is 179, with 20,641 scholars; of which 57, with 11,073 scholars, are Government; 78, with 7,789, are aided; and 44, with 11,779, are unaided. The monthly fees at the Government high schools are 1 to 2½ rupees; and classes have been opened at 18 or 20 of them, in surveying, drawing, and physical geography. Those in Calcutta are self-supporting. The zillah or high schools of the North-West Provinces also educate up to the entrance standard of the university. Three, with 776 pupils, are attached to colleges; 9, with 1,900 pupils, are superior; and 13, with 1,137 pupils, inferior. Altogether there are 25 high schools in the North-West Provinces, with 3,813 pupils. Most of them have good school-houses attached, the latter arrangement being necessary in order that the wealthier inhabitants of villages may share in the benefits of high and middle-class education. Allahabad High School is the largest in the North-West Provinces, and Etawah (Hume's High School) has been most successful. The highest Oriental teaching is at the Benares School, where there are 27 Government scholarships. The zillah or high schools receive 130 scholarships a year, worth 3 rupees a month. There are also a great number of aided high schools, most of them belonging to missionary societies. In the Punjab there are six Government high schools, one at Delhi, with 108 pupils, two at Lahore with 110, one at Amritsar with 65, one at Hoshiapur with 24, and one at Gújrat with 20; besides ten aided high schools. There are also two special schools; the Government Ward School at Ambala, for the education of Government wards and the sons of natives of rank, where there are 10 pupils; and the Anglo-Arabic School at Delhi, endowed by a legacy of Nawab Fazl Ali Khan for the furtherance of education in that city, but managed by Government. It gives instruction to 243 students in Arabic, who are all Muhammadans. In Oudh there are 11 high schools, with 3,096 pupils. In the Central Provinces there is one Government high school with 29 pupils, and 4 aided schools with 82; and in Berar there are two high schools, with 122 pupils.

In the Bombay Presidency the high schools are the medium of instruction in English, and of training for the colleges affiliated to the university. The average daily attendance compared with the ratio of number on the books is ·85. There are now 41 high schools, with 7,167 pupils, four having been added during the year 1872–73. There are also many important private high schools. There are seven aided by the Government, which are intended for European and Eurasian children; and nine missionary schools, receiving aid according to results. They rouse the Government schools to increased efficiency by competition, and do still more good by receiving waifs and strays from the bazaars, who would otherwise be uncared for, to whom they offer protection and instruction. Three of these missionary schools are at Bombay, and the others in Poona, Ahmadabad, Súrat, Belgaum, Sharanpur, and Karáchi. Then there are 8 private schools belonging to natives, which all receive grants according to results, except the Bombay Proprietary School for the sons of wealthy natives, which is self-supporting. In the Madras Presidency there are 53 high schools, with 11,990 pupils, many of which belong to missionary societies.

Some of these should properly rank as colleges. At the Combaconum Provincial College, for instance, there are 60 undergraduates; and the Central Institution of the Free Church of Scotland has upwards of 70 students in its college department. In Mysore there are 7 Government high schools, with 1,524 pupils, and 5 aided, with 832. But the Bangalore High School, the Mysore Rajah's School, and two private institutions should rank as colleges, for they have classes for preparing students for the higher university examination. Indeed the Bangalore High School is the central educational establishment in Mysore. A good deal of attention has been given to physical training in the Mysore high schools. At Bangalore there is a complete gymnasium, and cricket matches are fairly established. Cricket also flourishes with great vigour at Hassan. There is one central high school at Mercara, the capital of Curg, fed by the Anglo-vernacular schools in each taluk, with two boarding-houses, and 293 pupils, 152 of whom are Curgs. There are no high schools in British Burma.

The high schools supply the candidates for the entrance examinations at the universities, and also furnish the training for natives who seek employment in the higher grades of the civil service. In December, 1872, there were 2,144 candidates for the entrance examination at the Calcutta University, an increase of 242 over the previous year, of whom 938 passed. Out of these candidates, 1,717 were from the Bengal high schools, and of these 1,558 were Hindus, 74 Muhammadans, 83 Christians, 1 a Buddhist, and 1 Sikh. From the high schools of the North-West Provinces, out of 186 candidates 100 were successful. From the Punjab 22 were successful out of 54 candidates. From Oudh 44 passed out of 105.

The Bombay University has held matriculation examinations since 1859, when there were 127 candidates, out of which 122 passed. In 1862 only 30 passed out of 134. In 1872 there were 909 candidates and 378 passed. From the foundation of the Bombay University to 1872 there have been 6,341 candidates for the entrance examination, and 1,832 have been successful. The matriculation examination of the Madras University is held annually at fifteen places in the Presidency. In 1872–73 there were 1,530 candidates, and 611 passed. Of the successful students 48 were from Mysore.

For the teaching in all these classes of schools there are normal training schools for masters. In Bengal there are 26 of these normal schools with 1,319 pupils, of whom 318 are for *Gurus*, or village schoolmasters, and 127 for *Pundits*, or higher vernacular teachers. In Patna there are also English classes at the normal schools. The course is for three years, and the training includes geography, history, geometry, mathematics, surveying, and the art of teaching surveying, all conveyed through the vernacular. Besides the Government normal schools in Bengal, there are 17 schools for training masters and mistresses, under the management of the missionary societies. These contain 1,986 pupils, chiefly trained for primary instruction among the aboriginal races. In the North-West Provinces there are 12 normal schools for training masters and mistresses, where 421 males and 41 female teachers are being trained. In the Punjab there are three Government and six aided normal schools. In Oudh every class of school has its own curriculum printed and suspended in each schoolroom, with the hours of assembly and holidays, and every schoolmaster has a manual of duties, with a few plain directions in school management. Each district also has a library for the use of village schoolmasters, and the normal schools are satisfactory. In the Central Provinces there are seven normal schools, with 205 pupils, and in Berar with 29. In the Bombay Presidency there are 12 normal schools, with 602 pupils, and in Madras 17, where 1,929 teachers are trained. The teachers for the *Hobli* schools in Mysore are trained in normal schools, one in each division, and there is one such school in Curg.

The colleges affiliated to the universities only admit matriculated students. Of these there are 15 in Bengal, of which 10, with 858 pupils, are Government institutions, and 5, with 305 pupils, are aided. The Presidency College at Calcutta was established in 1855, and has seven scholarships attached to it. The Hugli College, founded in 1836, is supported from funds bequeathed by a wealthy Muhammadan. It consists of an English, an Arabic, and a law department. The Dacca College, opened as a school in 1835, became a college in 1841. The Colleges of Kishnagur and Berhampur were founded in 1845 and 1853 respectively; and the Patna College was commenced in 1864. The four Government colleges at the Presidency, Hugli, Dacca, and Patna, and all the aided colleges, educate up to the examination for Bachelors' degrees. But the first university examination, after matriculation, is that of "First Arts," which takes place after a course of two years at the colleges,

and two years after that comes examination for Bachelors' degrees. In 1873 science classes were introduced into two of the Government colleges in Bengal. Two science professors, Mr. Pedler and Mr. Watt, came out from England, the former to teach chemistry and conduct analyses, the latter to teach agricultural botany and physiology. Mr. Pedler, who is supplied with chemical apparatus, is at the Presidency College, for which Mr. H. F. Blanford has also prepared a text-book on physical geography. Mr. Watt is at the Hugli College. Law is taught in nine colleges, there being 425 students. The Medical College of Bengal was founded by Lord William Bentinck in 1835. The English class consists of scholarship-holders. The next classes are composed of natives, and are conducted in Urdu and Bengali. Besides the principal, there are 13 professors for the first class, besides two demonstrators of anatomy, and 6 teachers for the vernacular classes; there are 295 pupils. At the Presidency Civil Engineering College there are 133, and 94 at the School of Arts. The Calcutta Sanskrit College was founded in 1824, and is supported by Government. It is open to all respectable Hindus, and has a valuable library of Sanskrit manuscripts. There are annual examinations for the Bengal native civil service, and in January, 1873, there were 238 candidates, of whom 58 passed for the higher, and 86 for the lower class of appointments. Besides certificates of character, health, and ability to ride and walk, the requirements are some knowledge of the vernacular, chemistry, botany, law, drawing, engineering, surveying, and gymnastics.

There are four Government colleges in the North-West Provinces, at Allahabad, Agra, Bareli, and Benares, with 127 students, against 84 in 1871–72; and four private colleges receiving grants in aid, of which St. Peter's at Agra is Catholic; St. John's at Agra, and Joy Narayun's, at Benares, belong to the Church Missionary Society; and the Victoria College at Agra is supported by natives. The Agra College was established in 1823, and has an endowment, as well as allowances from Government. Its scholarships amount to 10*l.* a month. The Benares Sanskrit College was founded in 1791 for the cultivation of the language, literature, and religion of the Hindus. In 1830 an English branch was added. With a view to enabling natives, after passing the university entrance examination, to devote their undivided energies to Oriental literature, Sir William Muir, in June, 1870, proposed the creation of a central college at Allahabad. A sum of 17,500*l.* was subscribed by the wealthy natives of the province, and he applied for a grant of 5,000*l.* for the building. There are, it was represented, two modes of education. In the Calcutta University system, English is the basis of instruction, as the language of the governing class, the key to offices of trust and emolument, and the means of introducing western science and philosophy; but this can never become a national system, and it is, to some extent, at variance with the Despatch of 1854, which urged the importance of careful study of the vernacular languages. The other mode, which, as the Lieutenant-Governor of the North-West Provinces thinks, has been too much lost sight of, is purely vernacular. He was anxious to form a central institution at Allahabad, which he believed to be necessary to combine this system into a homogeneous whole, by furnishing the stimulus of examinations and degrees. The Allahabad College will affiliate the vernacular schools, afford the means of education for undergraduates, and prepare them for the first arts examinations. The establishment for it was sanctioned in July, 1872, the ground has been marked out, and a design for the buildings selected. With Sir William Muir's consent it has received the name of the "Muir University College."

A chain of scholarships binds together the university, the colleges, and the high schools, as was suggested in the Despatch of 1854. Of these the undergraduates receive 80, at 4 to 5 rupees a month; the graduates of the first arts examination 50, at 10 rupees; and the bachelors 8, at 18 rupees. There are also five scholarships of 25 rupees a month for the Masters of Arts. The whole of these scholarships in the North-West Provinces cost 1,780*l.* a year.

Besides the affiliated colleges, there is the Agra Medical College, which receives pupils who have been trained in the numerous dispensaries, and the Rurki Civil Engineering College. The Thomason College at Rurki was founded in 1847 to give instruction in civil engineering to Europeans and natives, with a view to their appointment to situations connected with the public works of the country. It has a library of 12,000 books, a press for printing, lithography, engraving, and binding, an instrument depot, and publishes a valuable series of professional papers on civil engineering. The students are of various classes, officers in the army, non-commissioned officers and privates, English civilians, and native youths. It snpplies the

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Public Works Department with well-trained men, creates an engineering profession among the natives, and disseminates an engineering literature adapted to Indian wants and experiences. It is in sight, as Sir William Muir observed in a recent speech, of the noble monuments of engineering skill which conduct the Ganges canal from Hurdwar across intervening valleys and mountain torrents; and the college itself is full of associations of the famous engineering officers who have constructed the great irrigation works of India—Cautley, Baird Smith, Dyas, Turnbull, all now passed away. It has proved a blessing to the country by qualifying Europeans of every rank for the service, and by engrafting engineering science on the native youth of India.

In the Punjab the two colleges affiliated to the university are at Lahore with 52, and at Delhi with 36 students. The Punjab University College at Lahore has for its objects, like that at Allahabad, the encouragement of the study of eastern classical literature, the improvement of the vernacular, the promotion and diffusion of European science. Its scholarships amount in the aggregate to 840*l*. In Oudh there is, at Lucknow, the Canning College, with 67 pupils in its higher department. There are no affiliated colleges in the Central Provinces or the Berars.

There are six colleges affiliated to the Bombay University. Of these the Elphinstone College at Bombay has 184 students, an increase of 60 over the previous year. Of these 45 are Brahmins. New professorships of astronomy, natural history, history and political economy, Persian, and Arabic, and Sanskrit, have lately been founded. The Deccan College, at Poona, now has 99 students, of whom 90 are Brahmins, and it makes even progress, obtaining respectable results at the university. The Grant Medical College at Bombay also secures satisfactory results at the university. The prospects of the medical students are considered to be sufficiently assured to justify the levy of tuition fees of Rs. 25 for entrance, and Rs. 5 a month. These payments have caused no reduction in the numbers. The Poona Civil Engineering College has 69 students. The building for it was commenced in 1865, and completed in 1868, at a cost of 18,000*l*., of which Cowasjee Jehanghir contributed 5,000*l*. It consists of a main hall, with lecture, drawing, and photograph rooms, and a set of workshops. There is another small civil engineering college at Haidarabad, for training Sindh youths for subordinate grades in the Public Works Department. There are 14 pupils, and the course of instruction has since been revised, and the teaching staff strengthened. The Bombay School of Art has been placed under the Education Department, and a museum and class room have been sanctioned on a new site. It is divided into an elementary drawing school and practical departments for learning wood engraving, decorative painting, and architectural sculpture. The average attendance was 79, against 57 in 1871-72. During 1872 a party of the students, under Mr. Griffiths, visited the cave of Ajanta, and took moulds of the sculpture and copies of the paintings.

In the Madras Presidency there are 13 affiliated colleges, with 480 students. Of these the Presidency College has six professors. The Trivandram College, in Travancor, is also affiliated to the university; and in 1871 its students obtained 3 Bachelors' degrees; while 28 passed the matriculation, and 9 the first arts examination. The high school at Ernacollum in Cochin, also has a university class, and 4 of its students matriculated last year. Some of the best high schools have university classes, and there are also the Doveton Protestant College, and the Medical and Civil Engineering Colleges.

The Madras School of Art is the oldest in India, having been established by Dr. A. Hunter in 1850. In 1856 the Madras Government was so well pleased with the practical results of the school, that Dr. Hunter was placed in official charge of it. Between 1850 and 1873 there were upwards of 4,220 pupils at the Madras School of Arts, of whom a larger number have obtained employment under Government or in private workshops. The usual salaries given to them, after they had passed the examinations, were *Rs.* 25 to 50 a month; but some, who were trained as modellers of figures and potters, got salaries from *Rs.* 200 to 280 a month. The Rajahs of Travancor, Vizianagram, and Jaipur have established Schools of Art, with teachers trained in Dr. Hunter's School at Madras, and there are others at Bangalore, Mysore, and Nágpur.

These affiliated colleges prepare the undergraduates for the other university examinations. In two years after matriculation comes the 'First Arts' examination. In December, 1872, there were 560 candidates for it at the Calcutta University, of whom 463 were from Bengal colleges. Out of 220 who passed there were 175 Bengal students, 170 Hindoos, and 5 Muhammadans. From the North-West Provinces there were 45 candidates, of whom 17 passed. From the Punjab 10

passed out of 25; and 5 students from Oudh were successful. At the Bombay University since 1861 there have been 832 candidates at the 'First Arts' examination, of whom only 300 were successful. In 1872, out of 99 candidates, 24 passed. At the Madras University there were 97 candidates for this examination, of whom 76 passed. Of these 9 were from Mysore.

Two years after the 'First Arts' examination come that for a Bachelors' degree. For this there were 242 candidates at the Calcutta University in January, 1873, of which 207 were from Bengal; and out of the 126 who succeeded, 110 degrees were secured by the Bengal aspirants. From the North-West Provinces there were only 16 candidates, of whom 7 got their degrees. Out of 14 candidates from the Punjab, 8 passed; and 1 student from Oudh succeeded. The Bombay University, since its foundation, has conferred 152 Bachelors' degrees for Arts; and out of 56 candidates in 1872, 22 succeeded. The Madras Presidency gave 21 degrees of Bachelor of Arts, three of which were secured by students from Mysore. Degrees are also conferred at all three universities for law, medicine, and civil engineering, There were 137 candidates for law degrees at Calcutta in 1873, of whom 75 passed, and 77 became licentiates. In civil engineering 1 student took a Bachelor's degree, and 7 obtained licenses. The Calcutta Medical College sent up 52 candidates for licenses in medicine, of whom 25 succeeded. At the Bombay University one student became a Bachelor of Law in 1872, 19 passed in medicine, and 19 in civil engineering.

The final university examination is for honours in arts. Out of 19 candidates at the Calcutta University in January, 1873, 15 became Masters of Arts with honours, and out of 11 candidates for the ordinary degree, 5 passed. Of these prizes one was secured by a student from the Delhi College, and one fell to a native of Oudh.

At the Bombay University only 34 Masters' degrees have been conferred since its foundation. In 1872, out of 6 candidates, 5 became Masters of Arts. Only one such degree was conferred by the Madras University.

The Indian Universities were incorporated in 1857. It is deserving of note that the three universities were calmly founded in the regular way of routine during the worst time of the mutinies, when our power seemed at its lowest ebb. The Calcutta University exercises functions over Bengal, the North-West Provinces, Oudh, and the Central Provinces. The governing body is the Syndicate, consisting of the Vice-Chancellor and six members of the Senate. It prescribes the text books and subjects, and the examinations, and thus dominates and guides the course of instruction in all the affiliated colleges and schools. The endowments amount to 23,700*l.* capital, including 20,000*l.* given by Premchund Roychund, of Bombay. It is devoted to five studentships of 200*l.* a year each, for which Masters of Arts of the university are eligible to compete and they are to be held for five years. There is also an endowment under the will of the late Prasana Kumar Tagor, for a law professorship, and fifty scholarships are awarded on the results of the 'First Arts' examination, ten of Rs. 25 and twenty of Rs. 40 a month. The graduates number about 1,500, and the undergraduates exceed 2,000.

The Bombay University was founded by Lord Elphinstone in 1857; to consist of a Chancellor, a Vice-Chancellor, and Senate, for faculties of arts, law, medicine, and engineering, and the same system of examination as at Calcutta. The Bombay University sets the standard of higher education, and examines for degrees. It has been enriched and endowed by the wealthy Settias of Bombay. The endowments for prizes amount to 970*l.*; sums of 10,000*l.* have been given by Sir Cowasjee Jehanghir Readymoney, for the university hall; of 40,000*l.* by Premchund Roychund for the library and clock tower; and a sum of 120*l.* from other benefactors for a grant of arms, and for the university silver mace. The hall and library have been erected on the esplanade at Bombay. Many of the graduates have taken distinguished places in the public service and in the liberal professions.

The Madras University, founded in 1857 by Lord Harris, grants the same degrees, and has the same system of examinations as those of Calcutta and Bombay. It has several endowed scholarships, such as 100*l.* given by the Maharaja of Travancore for a Travancore graduate in medicine or civil engineering; a similar one for a Cochin student, to the value of 650*l.*, given by the Raja of Cochin, and prizes for Tanjore students by Sir Madava Rao, K.C.S.I. In 1872 Mr. Campbell Johnston, in accordance with the will of his father, the Rt. Honble. Sir Alexander Johnston, founded two scholarships for Madura students, to be maintained from the income of lands claimed by Sir Alexander at Madura. There are three Doctors of Medicine of Madras, eight Masters of Arts, about 290 Bachelors of Arts, 79 Bachelors of Law, and 8 of Civil Engineering.

Thus a great and successful system of education has been developed in India, exactly on the principles laid down in Sir Charles Wood's Despatch of 1854. In Bengal a sum of 76,678*l.* was devoted to education in the year 1872-73, and 50,136*l.* was received from fees, making a total educational income of 126,815*l.*, by means to which 14,371 schools were maintained, giving instruction to 414,946 scholars. In the North-West Provinces there were 9,490 schools and 237,676 scholars, at a cost of Government of 99,636*l.* In the Punjab the number of schools was 1,298, of scholars 65,136; the cost from the public funds, 50,931*l.*; from the local cess, not given; from fees, 3,508: and the total cost, 54,439*l.* There were 952 schools in Oudh, with 48,911 scholars, maintained at a total cost of 14,185*l.* In the Central Provinces the 898 schools and 47,757 scholars were maintained at a cost of 32,395*l.*; and in the Berars the 540 schools and 15,878 pupils cost 32,523*l.* In the Bombay Presidency, including Sind, there were 4,088 schools, providing instruction for 218,466 pupils at a cost of 285,650*l.* In the Madras Presidency there were 6,780 schools and 192,054 scholars, at a cost of 95,935*l.* In Mysore the total number of schools was 2,250, with 38,096 scholars, with an income of 13,217*l.*; and in Curg there were 43 schools and 2,020 scholars, at a cost of 3,542*l.* So that the whole number of schools in British India, excluding the native States and Burma, is 40,700, giving instruction to 1,280,940 scholars, at a cost of 758,337*l.*

Female education receives much attention from the departments in all parts of India. In Bengal there were, in 1873, 245 girls' schools, all private but one. The education is of the simplest possible kind, but home teaching is preferred among the natives at Calcutta; and an American lady has organised a system there by which 40 or 50 governesses visit houses, and by this means several hundred girls are taught in the zenanas. But at present there is no real demand for the education of women and girls among the natives. In the North-West Provinces there are 420 girls' schools, with 8,130 pupils: but, as in Bengal, there is no real response to the endeavours of the Education Department to popularise these schools. Progress is very slow, and "the dead slumber of ignorance still shrouds the women of India." In the Punjab there are 91 Government and 254 aided female schools, a considerable falling off from the previous year. In Oudh there are 81 girls' schools, with 2,020 pupils, the average age being 8. In the Central Provinces the number of girls' schools is 118, with 4,185 pupils, and in Berar 25, with 457 pupils. In the Bombay Presidency the girls' schools are, as a rule, established in large towns, and there are now 11,000 girls under instruction. Their success depends very much on the working of the training schools. Several are doing well, and the liberal assistance of Miss Carpenter has enabled the Government to open a new female normal school at Haidarabad. There are now three of these schools, with 50 pupils. In the Madras Presidency the number of girls' schools has increased from 163 last year to 186, with 9,292 pupils. The number of girls under instruction, in all schools connected with the department, is 14,330. Those instructed by the missionary societies were nearly twice as many as those educated in any other way, and the Hindus seem to be seeking instruction for their daughters much more freely than hitherto. In Madras city there are 3,903 female scholars, and missionary Tinnevelly comes next with 3,548, then Malabar with 1,493. The girls in Kurnul are the most ignorant, there being only 23 at school. In Mysore there are also signs of a favourable feeling towards the education of girls being on the increase. The Jains and some of the trading castes are most favourable to it. There is much diversity of opinion on the subject among the rural population. There are 8 Government girls' schools in Mysore, with 242, and 31 private with 1,304 scholars. In Curg 160 little girls go to school with their brothers and learn needlework, in addition to the regular course, but there is no separate girls' school. From these figures it would appear that there are about 1,640 girls' schools in British India, and that somewhere about 57,000 girls are receiving some sort of education.

The schools of art and museums are powerful instruments in the spread of education. Museums have long been established at Calcutta and Madras. The Indian Museum at the former city was formed in 1866, and there are also a geological museum and one belonging to the Asiatic Society, The daily attendance averages 657. The Government Central Museum at Madras was visited by 112,360 persons in 1872–73, and there are small local museums at Rájmahendri and Utakamund. The Bangalore Government Museum was founded in 1864.

The Bombay Museum was founded by Lord Elphinstone, under the name of the "Government Central Museum," for the illustration of the economic products and natural history of Western India. The late Dr. Buist, LL.D., F.R.S.; was the first

curator, and the Rev. Dr. Fraser, LL.D., succeeded him. The collections organised by these gentlemen were lodged in the town barracks, and on the breaking out of the mutiny in 1857 they were destroyed, the brigadier commanding the Bombay garrison having ordered them to be thrown of the windows. In the same year Lord Elphinstone appointed Dr. Birdwood as curator, who, with the aid of Dr. Bhau Daji, raised a large sum of money by subscriptions from the public for the erection of a building. It was erected in the Agri-Horticultural Society's garden; and thus was established the Victoria and Albert Museum and Gardens, at a total cost of 100,000*l*. The first stone was laid by Sir Bartle Frere in November, 1862; but the works were stopped in 1865 for want of funds, and it was not until 1868 that the Government again undertook to complete them. The new museum was opened in 1871. During the interval of its building, Dr. Birdwood arranged the collection in the Town Hall, and zealously worked at the task of making it a really useful institution, until his retirement in 1868. He drew up valuable reports on the Tasar silk and on the Indian blister fly, and, in connection with the museum, he published a catalogue of the economic vegetable products of Western India. It was also through his connection with the Victoria Gardens that he was enabled to identify the sources of frankincense (*gum olibanum*), and to complete his important monograph on the genus *Boswellia*.

There is also a small museum at Karáchi. The Lahor Central Museum was visited by 49,903 persons during 1872–73. It contains a fine collection of coins, and a most interesting gallery of Græco-Bactrian sculptures. The Lucknow Museum was visited by 132,496 persons, and 58,000 visitors came to the the Nagpúr Museum in 1872–73. There are institutions of the same kind at Allahabad and other places, and the numbers of visitors who flock to them show that they take their share in the education of the people.

But one very important criterion for judging of the intellectual movement that is going on in Indian is the number and character of the books and newspapers that are published. In Calcutta there are 23 daily, weekly, and monthly newspapers published, of which 15, or a little over half, are English, and the remainder Native; but there are only five English newspapers published in other towns of Bengal, against 32 Native newspapers. The number of magazines published at Calcutta is 19, of which three are Native, and the rest English, against eight Native, and two English published in other towns in Bengal. The number of books published in Bengal during the year under review was 1,082, but the return gives no particulars as to their character. As a rule the vernacular newspapers in the districts are not important, and have little influence. But the native papers of Calcutta exhibit considerable talent and excessive freedom of opinion. They certainly are an engine of some power.

There were 36 Native newspapers published in the North-West Provinces in 1871–72, with an average circulation of 253 copies each, and nine magazines. Of the two languages, Urdu keeps a decided lead in relation to Hindi, the great majority of the newspapers and magazines being in the former language. As a rule, there is nothing that is offensive to morality or good taste in these publications, and much that is useful. The Government takes a large number of copies, with a view to stimulating the circulation, and it is considered that the intellectual progress resulting from the reading of these papers is not unimportant. Ninety-seven books were published in 1872–73. Educational works formed 58 per cent. of the whole, and works on religion 19 per cent. Religion and poetry are the subjects on which books are most in request. The Government grants rewards for meritorious authorship in the vernacular.

In the Punjab 12 Native and two English newspapers are published; and in 1872–73 the books were 344 in number. In Oudh there are four English and three Native newspapers. No information respecting newspapers is given in the Madras Report; but 387 books were published in that Presidency during the year 1872–73, of which 187 were original. In English there were 76; in Tamil, 130; in Telugu, 85; in Malayalim, 14. 144 were on religion, 36 on poetry, and 37 on language. A set of vernacular maps for elementary schools has also been completed. Of the four languages in the Bombay Presidency, Marathi and Gujráthi show signs of intellectual activity, but in Canarese and Sindi there are few books and no newspapers. A reporter on the Native press is maintained by the Bombay Government, who draws up a weekly report. Of the 52 Native newspapers in the Presidency, 28 are in Marathi, 23 in Gujráthi, and one in Hindustani. They are published in most of the large towns, and their general tone is loyal, the advantages of British rule

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being understood and confessed, although there are acrimonious attacks on particular measures, and on the conduct and actions of individual officers of Government. The topics most discussed were the Municipal Act, compulsory vaccination, the law against infanticide, and Sir Bartle Frere's mission. In 1872 the number of books published in the Bombay Presidency was 380. 332 were original works, and the rest translations or reproductions. The taste of readers seems to run in the same direction as in the North-West Provinces and the Madras Presidency. There were 124 on poetry, 61 on religion, and 16 on law. The general tone of vernacular literature, in respect of morality, is reported to be good and progressive. Among native publications there is a Marathi drama, "The Death of Afzul Khan," in which Siváji is defended against the charge of perfidy, on the ground that the Muhammadans themselves meditated treachery. A learned work on the ancient history of Persia was also published in Gujráthi; and prizes of 40*l.* and 20*l.* were given for Marathi poems on the Ganges. A Dustoor at Poona has been engaged during the year in collating the MSS. of the Pahlavi text of the Yasna; and the Pahlavi text of a very curious work, "The Book of Ardai Kiraf," was prepared by the Dustoor, and published with a translation by Dr. Haug. The third and fourth fascicles of the catalogue of Brahmanical MSS. in Gujráthi has been published by Dr. Bühler, who is now exploring the large Jaina libraries at Ahmadabad.

The growth of scientific and literary societies among the Native communities is a very remarkable sign of progress and of intellectual activity which deserves careful attention. There have always been societies in India in which Europeans and educated Natives meet on common ground, and such institutions continue to increase and flourish. The Bengal Asiatic Society was founded by Sir William Jones in 1774 as a centre to which individual inquirers might forward their materials, and from which they might derive assistance and advice, and the Madras Literary Society was formed in 1818. The Bombay branch of the Asiatic Society dates from the year 1804, and in 1817 it was grafted on to the Royal Asiatic Society in England as the Bombay branch. Its Journal was established in 1841, and the publication has been regularly kept up ever since at intervals of one or two years. During ten years Mr. William Frere was its president, and Dr. Carter its secretary, men of high literary and scientific attainments; and on the retirement of Dr. Carter, who may be looked upon as the father of Indian geology, Dr. Birdwood succeeded to the secretaryship. During his brief incumbency the number of members was more than doubled, and the annual receipts were increased from 1,000*l.* to 3,400*l.*, in addition to 860*l.* from Sir Cowasjee Jehanghir for the purchase of coins, and 500*l.* for the purchase of standard works of Oriental literature; 1,000*l.* from the late Honourable Jugernath Sunkersett for books on natural history, and 1,000*l.* from Premchund Raychund for library fittings. Altogether 6,200 volumes were added to the library by Dr. Birdwood. He was succeeded by the late Mr. James Taylor, the distinguished secretary to the Bombay Chamber of Commerce, and the Society has continued to flourish and to publish its Journal with regularity. The Bombay Geographical Society, which dates from 1830, was, in 1873, amalgamated with the Bombay Branch of the Asiatic Society. The Medical and Physical Society, though it languished from 1863 to 1869, has now been revived, and published a large volume of transactions in 1871. The Sassoon Mechanics' Institute has 346 members, courses of lectures, and a good library of reference of 13,935 books. In Calcutta, besides the venerable Asiatic Society, there are the Bethune Society, for the promotion of intercourse between European and Native gentlemen, the Dalhousie Institute, for the literary and social improvement of all classes of the community, the Bengal Social Science Association, and others. In other parts of India there are several societies, such as the Rangún Literary Society, with lectures and classes, established in 1857. But in addition to these societies of European origin, there are now throughout India, and especially in Bengal, many associations, some of them literary or scientific, but others political, which were founded by and are composed entirely of Natives. In Bengal, among many others, there are the "People's Association" and the "Radical League." The Lieutenant-Governor says of them that "if not very completely justifying the titles they assume, they are nevertheless an earnest of things to come, and are on the whole much to be encouraged. Some of them are already interesting societies, with much reality and substance in them." In Oudh there are three native Reform Clubs, at Lucknow, Faizabad, and Gonda, and three native literary societies. In the Central Provinces the associations appear to be chiefly formed by schoolmasters, to afford opportunities for self-improvement, but there are also Native clubs. In Bombay the Students' Literary and Scientific

Society consists exclusively of natives, and has 111 members. Its course of lectures, in 1873, comprised one on Comte's three stages of thought, others on free will and necessity, on the life and doctrines of Buddha, &c. The Society supports three girls' schools, with 283 pupils, and has two branches called the Marathi and Gujráthi Dryanprasarah, at each of which lectures are also given. The information on his interesting subject from other parts of India is very incomplete, but it is clear that these Native Societies and institutions are advancing with rapid growth, and springing into existence in all directions.

The numerous excellent missionary schools receiving grants-in-aid in the various provinces have already been referred to, but the whole subject of missionary enterprise in India has such an important bearing on the intellectual advancement of the people, that any notice of Indian education would be incomplete without giving some details respecting the work of the missionaries. A recent inquiry into the statistical details of missions in India, combined with the ordinary sources of information, furnish materials for estimating their progress which are authoritative and complete.

The Protestant missions of India, Burmah, and Ceylon are carried on by 35 missionary societies, in addition to local agencies, and now employ the services of 606 foreign missionaries, of whom 551 are ordained. They are widely and rather evenly distributed over the different Presidencies, and they occupy at the present time 522 principal stations, and 2,500 subordinate stations. The entire Presidency of Bengal, from Calcutta to Pesháwar, is well supplied with missionaries, and they are numerous in the southern portion of the Madras Presidency. The various missions in Calcutta, Bombay, and Madras are strong in labourers, and almost all the principal towns of the Empire have at least one missionary. A great impulse was given to the efforts of these societies by the changes in public policy inaugurated by the Charter of 1833, and since that period the number of missionaries, and the outlay on their missions, have continued steadily to increase. In 1852 there were 459 missionaries in India, at 320 stations, and in 1872 the number of missionaries was increased to 606, and of stations to 522.

This large of body of European and American missionaries settled in India bring their various moral influences to bear upon the country with the greater force because they act together with a compactness which is but little understood. Though belonging to various denominations of Christians, yet from the nature of their work, their isolated position, and their long experience, they have been led to think rather of the numerous questions on which they agree than of those on which they differ, and they co-operate heartily together. Localities are divided among them by friendly arrangements, and, with few exceptions, it is a fixed rule among them that they will not interfere with each other's converts and each other's spheres of duty. School books, translations of the Scriptures and religious works, prepared by various missions, are used in common, and helps and improvements secured by one mission are freely placed at the command of all. The large body of missionaries resident in each of the Presidency towns form missionary conferences, hold periodic meetings, and act together on public matters. They have frequently addressed the Indian Government on important social questions involving the welfare of the native community, and have suggested valuable improvements in existing laws. During the last 20 years, on five occasions, general conferences have been held for mutual consultation respecting their missionary work; and in January last, at the latest of these gatherings, at Allahabad, 121 missionaries met together, belonging to 20 different societies, and including several men of long experience who have been 40 years in India. The railway system rendered such a gathering easy, and brought the members of the conference from all parts of the Empire.

The labours of the foreign missionaries in India assume many forms. Apart from their special duties as public preachers and pastors, they constitute a valuable body of educators; they contribute greatly to the cultivation of the Native languages and literature, and all who are resident in rural districts are appealed to for medical help to the sick.

No body of men pays greater attention to the study of the Native languages than the Indian missionaries. With several missionary societies (as with the Indian Government) it is a rule that the younger missionaries shall pass a series of examinations in the vernacular of the district in which they reside; and the general practice has been that all who have to deal with Natives who do not know English shall seek a high proficiency in these vernaculars. The result is too remarkable to be overlooked. The missionaries, as a body, know the Natives of India well; they

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have prepared hundreds of works, suited both for schools and for general circulation, in the fifteen most prominent languages of India and in several other dialects. They are the compilers of several dictionaries and grammars; they have written important works on the Native classics and the system of philosophy; and they have largely stimulated the great increase of the Native literature prepared in recent years by educated Native gentlemen.

The mission presses in India are 25 in number. During the 10 years between 1852 and 1862, they issued 1,634,940 copies of the Scriptures, chiefly single books, and 8,604,033 tracts, school-books, and books for general circulation. During the 10 years between 1862 and 1872, they issued 3,410 new works in 30 languages, and circulated 1,315,503 copies of books of Scripture, 2,375,040 school-books, and 8,750,129 Christian books and tracts. Last year two valuable works were brought to completion, the revision of the Bengali Bible, and the first publication of the entire Bible in Sanskrit. Both were the work of the Rev. Dr. Wenger, of the Baptist Mission in Calcutta.

The missionary schools in India are chiefly of two kinds, purely vernacular, and Anglo-vernacular schools. The former are maintained chiefly, but not exclusively, in country districts and small towns; the education given in them is confined pretty much to reading, writing, geography, arithmetic, and instruction in simple religious works, such as the "Peep of Day." In the Anglo-vernacular schools a much higher education is given, not only in those subjects which are taught in English, but in those in which the vernacular is employed; a higher knowledge even of the vernacular languages is imparted in these schools than is usually given in purely Native schools. These schools are most in demand in country towns, in the Presidency cities, and in the districts immediately around them. Bengal has long been celebrated for its English schools; and the missionary institutions in Calcutta still hold a conspicuous place in the system and means of education generally available to the young Hindus of that city. All the principal missionary institutions teach up to the standard of the entrance examination in the three universities of India, and many among them have a college department in which students can be led on through the two examinations for B.A., even up to the M.A. degree. A Table showing the number and range of these schools will be found in the Appendix.

In addition to the work of these schools, it should be noted that several missions maintain training colleges for their Native ministers and clergy, and training institutions for teachers. These colleges and institutions are 85 in number, and contain 1,618 students. The training institutions for girls are 28 in number, with 567 students. An important addition to the efforts made on behalf of female education is seen in the Zenana schools and classes which are maintained and instructed in the houses of Hindu gentlemen. These schools have been established during the last 16 years, and now number 1,300 classes, with 1,997 scholars, most of whom are adults. Of these, 938 classes, with 1,523 scholars, are in Bengal and the North-West Provinces. The effort has not yet much affected the other provinces of India.

The great progress made in these missionary schools, and the area which they occupy, will be seen from the following fact. They now contain 60,000 scholars more than they did 20 years ago. The figures are as follows: in 1852 the scholars numbered 81,850, and in 1872 the number was 142,952.

The high character of the general education given in the college department of these institutions may be gathered from the following facts. Between 1862 and 1872, 1,621 students passed the entrance examination in one or other of the three Indian universities; 513 students passed the first examination in Arts; 154 took the degree of B.A.; 18 took the degree of M.A., and six that of B.L. A considerable proportion of the amount expended upon education by the missionaries in India is provided by school fees which in recent years have been much increased. The statistical tables, however, do not give the exact amount, neither do they state the amount received from the Government grants-in-aid. In the higher education it is believed that little expenditure falls upon the missionary societies beyond the salaries of the superintending missionaries.

The statistical returns now referred to state very clearly and completely the number of the converts who have been gathered in the various Indian missions, and the localities in which they may be found. They show also that a great increase has taken place in the numbers of these converts during the last 20 years, as might be expected from the lapse of time, the effects of earlier instruction, and the increased number of missionaries employed. In 1852 the entire number of Protestant Native

converts in India, Burma, and Ceylon, amounted to 22,400 communicants, in a community of 128,000 Native Christians of all ages. In 1862 the communicants were 49,688, and the Native Christians were 213,182. In 1872 the communicants were 78,494, and the converts, young and old, numbered 318,363.

A very large number of the Christian communities scattered over India are small, especially in the country towns, and they contain fewer than 100 communicants and 300 converts of all ages. At the same time, some of these small congregations consist of educated men, have considerable resources, and are able to provide for themselves. From them have sprung a large number of the Native clergy and ministers in different churches, who have received a high education in English institutions, and who are now taking a prominent place in the instruction and management of an indigenous Christian church. The Native ministry contains also men who have been well trained through the medium of the vernacular languages; but this important body of men are encouraged to master the English language also, that they may secure access to the vast store of Biblical literature which it contains, and which will give them direct aid in their duties. The Native converts are thus distributed at the present time:—

NATIVE PROTESTANT CONVERTS IN INDIA, 1872.

Divisions.	Communicants.	Native Christians.	Native Ordained Ministers.	Native Contributions.	
				Rs.	
Lower Provinces . .	13,502	46,968	35	8,937	
North-Western Provinces and Oudh . . .	3,031	7,779	19	5,265	
Punjab	707	1,870	14	1,661	
Bombay and Central India	2,256	6,686	26	6,583	
Madras	33,320	160,955	131	62,675	
Burma	23,514	62,729	77	42,736	
Ceylon	5,164	31,376	79	31,267	
TOTAL . . .	78,494	318,363	381	159,124	= £15,912

The missionaries, in the course of their efforts, have found the populations of the great cities much more tenacious in their opinions, and firm in their social relations, than those of country districts. On the other hand, they are more intelligent; they are good listeners; appreciate argument and illustration; and their children flock to the mission schools. The rural population have been much more open to their instructions; the peasantry of large districts have been less bound by caste ties; and the aboriginal tribes and classes in the community, both in the hills and in the plains, have embraced Christianity in large numbers.

The religious movements which took place 40 years ago among the peasantry to the south of Calcutta, among the indigo ryots of Krishnaghar, and in the thickly peopled swamps of Barisál, gave to the Province of Bengal three large Christian communities, which now number nearly 16,000 persons. They have been steadily cared for and well instructed, and have been consolidated into prosperous, well conducted communities. Within the last 20 years the German mission among the Cole tribes in the hills of Chota Nágpur, now divided into two branches, has greatly affected these simple yet manly people, and notwithstanding considerable social persecution, has led more than 24,000 persons among them to profess themselves Christians. Very recently the Santál tribes, in the same line of hills, have followed in their steps.

In the year following the mutiny a new Mission was commenced by an American Society in the provinces of Oude and Rohilkhand, and the Christian congregations already include 2,000 converts. The largest congregations in the North-West Provinces are found in Benares, Allahabad, Fathigarh, Agra, and Mirat (Meerut), and sprung from the boarding schools established in the great famines of 1838 and 1861. An important religious improvement has recently occurred in the dominions of the Nizam, under the conduct of Native missionaries, and 1,100 persons have become Christians.

A similar movement has taken place among the Telugu people of Ongole, under the American mission, which has resulted in 6,000 converts. More than

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7,000 are now included in the two missions at Cuddapah, and the Telugu missions in Guntur, in the Masulipatam district, and on the Godávari, have increased during the last few years from 1,500 Native Christians to more than 6,000.

But it is in the southern portion of the Madras Presidency that Christianity has most largely affected the rural populations. The Province of Tanjor, first instructed by the Danish missionaries, amongst them by the respected missionary Schwartz, has long possessed a large number of Christian congregations. These continue under the care of the Lutheran and the English Episcopal missions, and are reported to be in a prosperous condition. The Christians now number 11,000 persons in the Tanjor and Trichinapalli districts. In the neighbouring district of Madura the Americans have a flourishing mission, with 7,000 converts and a normal school.

The Tinnevelli aud Travancor missions are well known, and are reported to be in every way in a higher position, and exerting greater influence than ever before. These two provinces contain a very large aboriginal population, which has been but little affected by the Hinduism of Southern India. The Shannar tribe and their kindred connect themselves by tradition with the great demon-ruler of Ceylon, the celebrated Ravana, and from the numerous and marked peculiarities of their social and religious life have proved a most interesting study to the missionaries who have lived among them. They have been under instruction from the commencement of the present century. Good schools have flourished among them, by which girls have benefited as well as boys. Training schools have supplied well-taught schoolmasters, theological schools have in recent years provided a full supply of Native ministers and clergy, while the congregations have steadily multiplied, and the character of the whole people has been raised. Three missions have been carried on among them by the Church Missionary Society, the Society for the Propagation of the Gospel, and the London Missionary Society, and a large and influential English staff has conducted the affairs of these missions. The result is reported to be highly satisfactory. At the present time, 90,000 persons of all ages are professing Christians among the Shannar people; the districts are dotted over with flourishing villages and Christian churches; there are hundreds of Native teachers employed among them, of whom fifty-six are ordained, and are supported to a great extent by their congregations. Order and peace rule these simple communities, which give the Government little trouble, whether in the Madras Presidency, or under his Highness, the Maharaja, of Travancor while large tracts of country have been brought under cultivation, and the peasantry generally enjoy a larger share of material comfort than in days gone by.

Much the same may be said of the Church missions among the Syrians of Upper Travancor and Cochin. The congregations among them now include some 14,000 people, and the Syrian Christians at large have been greatly stimulated and improved through the efforts of the English missionaries carried on in their midst. Only one other mission needs special mention here, the American mission in Burma. This mission has drawn its converts chiefly from the Karen tribes, the aborigines of Burma and the Shan States, who have so heartily welcomed the English rule. Information respecting them has been scanty of late, but it is certain that 60,000 of them are Christian converts, and that the mission is largely supported by the people themselves.

Taking them together, these rural and aboriginal populations of India, which have received a large share of the attention of the missionary societies, now contain among them *a quarter of a million* native Christian converts. The principles they profess, the standard of morals at which they aim, the education and training which they receive, makes them no unimportant element in the Empire which the Government of India has under its control. These populations must greatly influence the communities of which they form a part; they are thoroughly loyal to the British Crown, and the experience through which many have passed has proved that they are governed by solid principle in the conduct they pursue. Dr. Hunter has recently set before the Government the importance of the hill races and other aborigines in India, reckoned at 70,000,000 in number, and both because of the simplicity of their habits, their general love of order, their teachableness, as well as their great numbers, has urged that new and large efforts shall be made for their enlightenment. In the same way many able missionaries advocate that the Christian efforts among them shall be increased. There is reason to believe that these estimable races will occupy a more prominent position in the Empire, in the future, than they have done hitherto.

But the missionaries in India hold the opinion that the winning of these converts, whether in the cities or in the open country, is but a small portion of the beneficial results which have sprung from their labours. No statistics can give a fair view of all that they have done. They consider that their distinctive teaching, now applied to the country for many years, has powerfully affected the entire population. The moral tone of their preaching is recognised and highly approved by multitudes who do not follow them as converts. The various lessons which they inculcate have given to the people at large new ideas, not only on pure religious questions, but on the nature of evil, the obligations of law, and the motives by which human conduct should be regulated. Insensibly a higher standard of moral conduct is becoming familiar to the people, especially to the young, which has been set before them not merely by public teaching, but by the millions of printed books and tracts which are scattered widely through the country. On this account they express no wonder that the ancient systems are no longer defended as they once were; many doubts are felt about the rules of caste; the great festivals are not attended by the vast crowds of former years; and several Theistic schools have been growing up among the more educated classes, especially in the Presidency cities, who profess to have no faith in the idol-gods of their fathers. They consider that the influences of their religious teaching are assisted and increased by the example of the better portion of the English community, by the spread of English literature and English education, by the freedom given to the press, by the high standard, tone, and purpose of Indian legislation, and by the spirit of freedom, benevolence, and justice which pervades the English rule. And they augur well of the future moral progress of the Native population of India from these signs of solid advance already exhibited on every hand, and gained within the brief period of two generations. This view of the general influence of their teaching, and of the greatness of the revolution which it is silently producing, is not taken by missionaries only. It has been accepted by many distinguished residents in India, and experienced officers of the Government, and has been emphatically endorsed by the high authority of Sir Bartle Frere. Without pronouncing an opinion upon the matter, the Government of India cannot but acknowledge the great obligation under which it is laid by the benevolent exertions made by the 600 missionaries, whose blameless example and self-denying labours are infusing new vigour into the stereotyped life of the great populations placed under English rule, and are preparing them to be in every way better men and better citizens of the great Empire in which they dwell.

The Catholic missions in India are efficiently continued, but they are almost entirely confined to their Christian converts, and have little to do with the non-Christian population. The missions are divided into two branches, those which maintain a connection with the Portuguese portion of the Church, under the Archbishop of Goa, and those which are under the vicariates of the Jesuit Mission. During the last 40 years both branches have been renewed and revived from the decay into which they had fallen, and seem to be well supplied with foreign as well as with Native clergy.

The Goa Church has the largest number of its converts and followers in Bombay and its coast districts, in Travancor, around Madras, and in Eastern Bengal. The number in Bombay is not known, but in other parts of India they are about 48,000.

The vicariates of South India, which sprang from the celebrated Madura Mission, are 10 in number; they contain about 16 regular clergy, who are foreigners, and more than 400 native priests. The converts under their charge are reckoned at more than 600,000; of these 150,000 are in the district of Madura, 90,000 in the French district of Pondicherry, and over 250,000 in North Travancor. A few years ago a large secession took place from the last-named mission. The fishermen on the coasts of South India, amongst whom St. Francis Xavier laboured with so much earnestness, still continue to profess the Christian faith, and regard him as their patron saint. There are six seminaries conducted by the mission in South India, employed both as boarding schools for lads and as training schools for native priests. Two of these are at Virapalli, the head-quarters of the Romo-Syrian Mission in Travancor; another is at Pondicherry, and a third at Negapatam was established through the earnest exertions of Father Clifford, though opened only after his lamented death. The number of the students in these institutions is not known, and very little information is given respecting the Catholic schools in India generally.

XIII.

POLITICAL.

THE Native States of India form one of the most important and difficult sections of administration. Every State, and the number, including the smaller feudatories, exceeds 460, acknowledges the supremacy of the British Government, but, in other respects their rights and obligations differ from each other. Some merely acknowledge our supremacy, like Nepal; others also undertake to follow our advice and to govern their subjects with justice; others again pay tribute, or provide for the maintenance of a contingent. Some have power of life and death, others must refer all grave cases to English judges. Nearly all have, since the mutinies, received guarantees that their chiefs will be allowed to adopt successors on failure of heirs; and their continued existence has thus been secured. This measure represents a great change of policy, and is a return to that which was advocated by Lord Metcalfe in 1837. He held that, even in the event of absolute failure of heirs, it would be more consistent with right that a people of a State so situated should be allowed to elect a sovereign for themselves, than that the State should be annexed. The policy is now unalterably fixed, by which existing native States will continue, through the admitted right of adoption, to maintain their positions as they are now admitted by treaty or agreement. In the numerous Native States openings are afforded for the natural ambition of the educated classes, who are thus enabled to attain to the highest rank as statesmen and administrators. It appears that in 1871 351 Hindus and 85 Muhammadans, received Government appointments in India, of not less than Rs. 15 a month in value. The outlet for the rest of the educated classes seeking administrative work must be in the Native States.

In reviewing the political events of the year 1872–73, which have been few and unimportant, it will be well at least to enumerate the Native States, and to explain very briefly the treaty rights and obligations of each, in order that all may have their due place in the general scheme of the Report. With the object of making this enumeration as clear and intelligible as possible, the following classification, with reference to geographical position, ethnological affinity, and political connection, is perhaps the best that could be adopted. The Native States may be classed in twelve groups:—

1. The Indo-Chinese group of States and Tribes, all (except Kúch Bahar) with Chinese or Burmese affinities, all forming a fringe round the Government of Bengal, and all being geographically contiguous one with the other. They may be further classed in two subdivisions, the settled States, comprising Nepal, Sikkim, Bhutan, and Kúch Bahar, and the hill tribes.

2. The aboriginal feudatory chiefships, consisting of Ghond and Kole tribes in Chota Nagpur, Orissa, the Central Provinces, and the Jaipur Agency.

3. The Native States along the slopes of the Western Himalayas, from the western frontier of Nepal to Kashmir, ruled generally by Rajput chiefs.

4. The Afghan frontier tribes beyond the Indus.

5. The Sikh States, in the Sirhind plain, on the hither side of the Satlej.

6. Three Muhammadan States, which, though geographically apart, have more in common with one another than any one of them has with any other group. These are Rampur, which represents the Rohilla State of the days of Warren Hastings, Bhawalpúr, and Khairpúr in Sind.

7. The States and numerous feudatory chiefships of Malwa and Bandelkand, in Central India, the former founded by Mahratta conquerors, the latter representing the older Rajput power.

8. The ancient sovereignties of Rajputana.

9 and 10. The two groups of Native States in the Bombay Presidency; the first in the north, for the most part speaking Gujráti; the second in the south, representing the surviving remains of the old Maharatta power.

11. The great Muhammadan power of Haidarabad, in the Deccan.

12. The Malayalim States of Travancor and Cochin on the Malabar coast, in the far south.

The State of Nepal, containing the valleys of three tributaries of the Ganges, the Gogra, Gunduk, and Kosi, lies among deep ravines and ridges of the Himalayas, and is separated from the plains of India by a belt of pestiferous forest called the Terai.

Luckhimpúr. Their constitution is democratic, every little village being independent In its rear are the loftiest mountain peaks in the world. In about the year 1767 the Gurkhas, a hardy race of mountaineers, overthrew a previous dynasty in Nepal, and became the governing race. They were aggressive and turbulent, and not content with overrunning the territories of other chiefs on the Indian slopes of the Himalayas, they extended their excursions into Tibet, and plundered the sacred temple of Digarchy. This excited the wrath of the Chinese Emperor. A great army invaded Nepal, Major Kirkpatrick's intervention arrived too late, and the Chinese general dictated an ignominious peace in 1792, within a few miles of the capital. But the Nepalese Government declined any close alliance with England, and Major Kirkpatrick quitted Katmandu in March 1793. In 1801 a treaty was concluded, which provided for an English resident at Katmandu, and Captain Knox was the first envoy, but soon aversion was shown to the alliance, and he retired in 1804. This was followed by numerous insolent acts of aggression on the part of the Nepalese, which ended in a declaration of war in November 1814. Two very arduous campaigns were conducted by Sir David Ochterlony. The Gurkhas fought most bravely, and it was not until the 2nd of December 1814 that the Nepalese commissioners signed a treaty of peace at Sígauli, which was ratified in 1816. The Nepalese were confined within fixed limits, and were forced to abandon all their conquests in the Western Himalayas to the west of Gurhwal, as well as their acquisitions in the direction of Sikkim; they agreed to allow an English resident at Katmandu, to acknowledge the British Government as the paramount power, and not to employ any British or European subject without the consent of the Governor-General. Then followed a long series of hostile acts and aggressions; and the massacre of 31 chiefs in 1846 led to the rise to power of Jung Bahadur, who has ever since been minister and virtual ruler of Nepal. He is decorated with the Orders of the Bath (K.C.B.) and the Star of India (G.C.S.I.) In February 1855 a treaty was signed for the surrender of heinous offenders, and the assistance afforded during the mutinies led to the cession of the Oudh Terai by a treaty dated November 1st 1860. But Nepal is a frontier state over which the English Government practically has no influence; and this mountain strip intervenes between India and Tibet at points where excellent trade routes might be opened. Except the resident at Katmandu, no Englishman can enter, much more explore the country, and no survey can be executed: nor is the exact nature of the relations between Nepal and China correctly known; though it is said that a mission, with presents, proceeds to Peking every five years. This year it is reported that something has disturbed the amicable relations between the Nepalese and Tibetan Governments. The area of Nepal is believed to be about 54,000 square miles, the population 3,000,000, and the revenue about 430,000*l.* During the year 1872–73 active steps were taken to demarcate the Nepal frontier. A substantial bamboo hedge is to be planted along the whole line with a space kept clear on either side.

Sikkim is the small Himalayan state on the eastern border of Nepal, lying in the basin of the Tista valley and under the shadow of the loftiest peaks in the world. The area, which is about 1,550 square miles, chiefly consists of forest-covered mountains and profound ravines, and the population of Lepcha, Buteah, and Limba mountaineers numbers about 7,000. The capital is at Tumlung, where the Rajah resides from November to May, when he moves to Chumbi, on the Tibetan side of the range. On February 10th 1817 a treaty was signed with the Sikkim Rajah, defining the Nepal boundary and giving him a guarantee of his own territory. In February 1835 the Rajah signed a deed by which the Darjiling valley was ceded to England, for a compensation of 300*l.*, increased in 1846 to 600*l.* a year. The Rajah had always desired to secure an exchange of runaway slaves, which was of course refused, and, in the hope of forcing compliance, his officers suddenly seized and imprisoned Dr. Campbell and Dr. Hooker in 1849. They were released in December, the allowance was stopped, and a piece of territory, including the lower course of the Tista and Sikkim Terai, was annexed. Two cases of kidnapping in 1860 led to the signature of a treaty, on March 28th, 1861, by which all previous treaties were cancelled: the Rajah engaged to pay 700*l.* as indemnification, and never to permit acts of kidnapping or aggression, to abolish all monopolies and restrictions on trade, to protect merchants and travellers, to offer no hindrance in opening roads through his territory or in making surveys, and to give aid, when required, in time of war. Sikkim is allowed 100*l.* to 200*l.* a year by the Chinese Government at Lhassa; and last year, on the ground of poverty and of continued loyalty since the signature of the last treaty, the Rajah requested that his allowance from the British Government might be increased to 1,200*l.* a year. This favour has been granted on condition

that every facility is given to trade with Tibet. The Rajah, with his brother and minister Chongzed Kabboo, a man of great natural powers and predominating influence over his countrymen, had an interview with Sir George Campbell at Darjiling in 1872. The Chongzed assured the Lieutenant-Governor that the prohibition of trade between India and Tibet, through Sikkim, was solely due to orders from Peking; and that the local officers would gladly facilitate a direct trade. Mr. Edgar, the Deputy Commissioner, was to visit Sikkim in 1876, to learn the actual state and prospect of the trade. His report, since received, furnishes some interesting notes of frontier geography and trade, an account of the relations between China and Tibet, and some striking pictures of Lamaistic observances.

On the east the state of Sikkim is bordered by Bhutan, where the mountains are inhabited by a turbulent race in close connection with Tibet. The temporal supremacy over the Bhuteas is vested in the Deb Rajah, and the spiritual in the Dhwan Rajah. Our first intercourse with the Bhuteas was in 1772, when they invaded Kuch Bahar in the plains. The Bhuteas were driven out, and, at the intercession of Tibet, Warren Hastings signed a Treaty, granting them peace, on the 25th of April, 1774; by which they restored all they had taken from Kuch Bahar. There was little further intercourse with the Bhuteas until the occupation of Assam, but since that time a closer neighbourhood has led to a more intimate but very undesirable acquaintance. The *Duars* are passes leading from the mountains into the Durrung and Kamrúp districts of Assam; and the Bhuteas used them for frequent raids and aggressions. These have been followed by the periodical occupation of the *Duars*, of which there are eleven bordering on Kuch Bahar and British territory between the rivers Tista and Monas, five on the north frontier of Kamrúp, and two on that of Durrung. At last the rude reception of Mr. Eden's Embassy in 1863, led to a war with Bhútan, and to the ultimate confiscation of the whole of the Duar. As, however, the Bhuteas depended mainly upon transit dues in the passes for revenue, it was arranged to allow them a subsidy of 5,000*l.* during good behaviour. The occupation of the two strong posts of Buxa and Dewangiri within their territory, serves as a material guarantee against future aggression. These arrangements were made by a Treaty dated April 25th, 1774. The population of Bhutan was estimated by Mr. Eden at 20,000. During 1872-73 Colonel Graham was engaged in demarcating the boundary between Assam and Bhutan. The whole of the frontier line from the Monas river on the west, where the demarcation of the Kuch Bahar frontier terminates, to the Deosham river on the east, where the territory of Bhutan proper merges in that of Towang Bhutan, a distance of 69 miles, has been fixed by masonry pillars at intervals. The hills are made over to Bhutan, except at the very important post of Dewangiri, which is retained. Here the line runs into the mountains, so as to bring that strong position within British territory. A map has been sent to the Bhutan Government, with an injunction to observe the line very carefully for the future. Little information can be obtained respecting the interior politics of Bhutan.

Kuch Bahar is a small state at the foot of the Bhutan Duars which, when the English expelled the Bhuteas in 1772, agreed, by Treaty dated April 5th, 1773, to acknowledge subjection and pay a large tribute. The state is now being managed by English officers, as the Rajah is a minor, and much improvement is reported in its administration. The area of Kuch Bahar is 1,292 square miles, with a population of 532,565 souls. The revenue is about 92,066*l.*; and it pays a tribute of 6,770*l.* It is surrounded by the British districts of Jalpigori and Rungpur.

The Towang Bhuteas occupy the southern slopes of the Himalayas to the eastward of Bhutan proper, of which state they are independent. A considerable trade between Lhassa and Assam is carried on through them. The Towangs are quiet and friendly. In 1844 they relinquished all rights to the *Duars*, on receiving a payment of 500*l.* a year. After Colonel Graham had, in 1872-73, demarcated the line along Bhutan proper, he proceeded to lay it down on the north face of the Durrung district of Assam, westward from the river Deosham to the Rowta, which comprises the frontier of the Towang Bhuteas, from the Rowta to the Ghabru. Eastwards of the Towangs are the Char Dwár and Thebengea Bhuteas, two small clans, which are not as a rule troublesome. The territory of the Char Dwárs extends from the Rowta to the Ghabru.

From Bhutan to Burmah the frontier of British India is occupied by wild and lawless hill tribes, of Chinese physiognomy, who have been very difficult to manage. They have received money payments in lieu of black mail. Next to Bhutan are the Akhas, whose raids were formerly frequent. They now receive 67*l.* in lieu of *posa* or black mail. Then come the Dufflas, along the frontiers of Durrung and north of

of its neighbours. There are 238 headmen, who draw 254*l.* as compensation for *posa*. Some Dufflas had settled in British territory, and on the night of the 12th of February, 1872, a village of these colonists was attacked by 300 hill Dufflas, sacked, and 44 persons carried off to the mountains. The hill men chose to think that a disease, with which they were visited, came from the plains; for which they demanded compensation, the attack following on a refusal. It is intended to blockade the hill Dufflas, in the hope that they will be induced. The Abors, Miris, Mishmis, Singphos, and Kamptis, are the tribes which inhabit the mountains round the extreme north-eastern frontier of British India. During the year under review they were quiet and peaceable. The Abors, as a rule, occupy the inner hills, while the Miris keep on the skirts of the plain, and even occupy villages within the settled tracts. The Abors are reported to be a dangerous, sulky race, over whom we have at present little hold. But since 1862 they have been tolerably quiet, keeping the peace along their border, and receiving small annual presents of cloth and hoes. The Mishmis are in the hills on the north-east frontier, in communication with Assam on one side and the Chinese of Bhathang on the other. The Kamptis are Shans of the Buddhist religion, near Sadya, on both sides of the Brahmaputra. They are now peaceable, and with some civilisation, having a language and literature of their own. The Singhpos are south of the Brahmaputra, and are supposed to be identical with the Kakhyens of Burma.

The mountains on the southern side of the upper part of the Assam valley are inhabited by the Nagas; and the policy with regard to them is to establish political control without any assertion of actual government. They extend from the hills south of the Singhpo country to the Khasi hills; and over the mountains between Assam and Burma. Little is known of many of the clans; but since 1866 an officer has been stationed among those between Manipúr and Assam. During 1872-73 Captain Butler and Major Godwin Austen were engaged in trying to settle a boundary between Manipúr and the Naga hills. This little state of Manipúr is on the frontier of Burmah, and as long ago as 1762 a treaty was made with its Rajah against the Burmese. On the breaking out of the first Burmese war, in 1823, the Rajah of Manipúr was declared to be independent, and a Political Agent was appointed in 1835. The state has an area of about 7,584 square miles; much covered with forest, and its boundaries are quite unsettled. The object of the exploring party in 1872-73 was to survey a boundary to the Tellizo, and then to examine the watershed as far north as the Patkoi pass. The attempt to fix a limit to any future encroachments on the side of the Naga hills was most distasteful to the Maharaja of Manipúr, who threw obstacles in the way of progress. But one very important geographical fact was established. The watershed, instead of running directly north-east from Tellizo, takes a deep bend to the south, so as to form a valley, watered by the Lamier, a considerable river flowing north. This region must be surveyed before the Burmese boundary can be settled; and there will be a geographical exploring expedition in 1873-74. There is no trace of any intercourse between the tribes known to us and the Burmese country, from the latitude of Manipúr to that of Sibsagar. Here a high and difficult mountain barrier intervenes between Assam and Burma.

The hills to the south of Manipúr, and the great belt of forest highland between Chittagong and Burma is inhabited by a number of clans, often hostile to each other, and known generically as Kukis. Large colonies of them have settled in Cachar and the Kuki tribe south of Cachar is known as the Lushais, and gave much trouble, both on the side of Cachar and Chittagong, until the military expedition of 1872 established an understanding with them. Those on the side of Chittagong are known as Sylus and Howlongs.

Between the Lushai country and the British district of Tipperah lies the hill territory of the Tipperah Rajah, who pays a succession duty to the paramount power. This state was long quite independent, but it is now practically a feudatory power with a political agent. It pays a succession duty of half the revenue on the accession of a new chief, according to a Government resolution of March 3rd 1870. The population of Tipperah is about 35,000.

The Lushais and tribes in the wild tracts of Chittagong wese quiet in 1872-73, and the eastern part of hill Tipperah has been found to be quite uninhabited. There will be measures taken for establishing a political police among the wild tribes, so as to become familiar with them. While left unknown in obscure hills and jungles, there is no security against raids, but when once there is intercourse, the mountaineers soon become amenable to authority. A definite boundary line will be fixed, and

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guarded by posts, beyond which there will be an exercise of political influence, but no direct interference or control. There will also be an "inner line" round Lakhimpur, which will be surveyed, and beyond which no British subject will be allowed to pass without a licence, in order to avoid collisions with, or complaints from the hill tribes.

Westward, between the Nagas and the Garo hills, are the Khasi Confederacies, a collection of small states with chiefs elected for life. There are 25, of which five have more independence than the others, as having always been on friendly terms with the Government. They all manage their own internal affairs. The whole of the Khasi tribes number about 85,000 souls.

The Garo hills, although hitherto unexplored, are surrounded on three sides by long civilized districts of Bengal and Assam. Last year the Garos made raids on some dependent villages, and it was resolved that they should be brought under the direct control of the Deputy Commissioner. An expeditionary force was accordingly organised, which advanced in three columns; one, under Captain Davis, entered the Garo hills from Goalpara to the north, the second, under Mr. Daly, advanced from the Bengal district of Maimansing to the south, and the main body started from Toora, the head-quarters of the Garo hill district, under Captain Williamson, who was accompanied by Lieutenant Woodthorpe as surveyor. The expedition was singularly successful, all the villages submitted, and the Garos are now peacefully employed in opening paths in several directions, which they will be required to maintain hereafter.

Thus the chief political business of the year in Bengal has been the very useful ones of demarcating frontiers, advancing the interests of trade, and humanising the wild hill tribes.

In the hill country of Chota Nágpur, to the south of the Ganges valley, in the mountains overhanging the littoral plains of Orissa and Vizagapatam, and in the Central Provinces, there are many feudatory chiefships, the inhabitants of which are mainly the wild Khonds and Koles, aborigines of the country. The Khonds* are worshippers of the goddess who presides over the productive energies of nature, and who could only be propitiated by the blood of human victims. In 1826 the Rajah of Buster sacrificed 25 men before setting out on a journey, and the *merias* or victims were bought from man stealers at from 50 to 80 rupees, according to the sex. Crowds came to the sacrifices offered to the earth goddess, in the Vizagapatam district, the victim being torn in pieces by the people. Thousands of human beings have thus been tortured to death; and it was not until 1836 that steps were taken to suppress the custom. Roads were made, fairs and markets were established, and the Khonds were invited to hold intercourse with their civilized neighbours. When Colonel Campbell at length persuaded them to sacrifice beasts instead of men, they prayed: "Do not be angry with us, O goddess, for giving you the blood of beasts "instead of human blood; but vent your wrath on that gentleman, who is able to "bear it." Gradually the Khonds were induced to renounce their ancient rites, and to deliver up the surviving *meriahs* or victims to the British officers. Between 1837 and 1854 there were 1,552 victims rescued, of whom 789 were girls. Of the latter many were married to Khonds of suitable age and means, and others went to school at Calcutta. Now the practice has been rooted out.

The special agency for the suppression of the *meriah* sacrifices was abolished in 1861, consequent on the organisation of efficient police in Vizagapatam. In the hills bordering that district of Madras, and especially in the wild Zemindary of Jeypur, both *sati* and human sacrifices were common practices, at least until 1855; boys and girls being bought from the poorer classes and reared as *meriahs*. In 1863 an English agent, for the first time was sent into the hill portion of Jeypur, and now there are four sub-magistrates among the wild Khonds, and an effective police.

On the South-Western Frontier or Chota Nágpur Agency, there are 21 *mehals* or chiefships in the four groups of Sumbalpur, Patna, and Singhbúm; many among the wild sal forests of the Mohenadi valley. The chiefs are bound to administer justice, but cannot inflict a heavier sentence than seven years' imprisonment. Singhbúm was confiscated for rebellion in 1857. They all pay a tribute, and are bound to perform general service. The Cuttack Tributary Mehals consist of 18 estates, two of which have been annexed, owing to the misconduct of the chiefs, and 16 are held on con-

* The best accounts of the Khonds are the work by Macpherson (1841), and a paper read before the Royal Asiatic Society, in March 1858, by Lieutenant Frye.

dition of the payment of tribute, the Rajahs administering justice under the control of the superintendent. The largest estate, that of Mokurbhung, has an area of 4,243 square miles, and the population of the whole is 1,283,309. The Cuttack Mehals are on the whole well managed, and the tribute is regularly paid. In the Central Provinces there are 18 feudatory chiefs, with territory covering an area of 28,000 square miles, a population of 1,095,000 souls, a revenue of 54,500*l.*, and paying 13,523*l.* of yearly tribute. There are seven of these chiefs in the Sambalpur district, two in Bilaspur, four in Raipur, one in the upper Godávari, and one in Hoshungabad. These chiefs are uncontrolled in the administration of the internal affairs of their territories, so long as they maintain order and refrain from oppression; and each state is ruled according to its own laws. The two largest, Bastu in the upper Godávari, and Khawagurh, are under Mahratta chiefs.

The Native States along the slopes of the Western Himalayas were revived by the English Government, after the Nepalese War in 1814. They had all, at least as far as the Satlej, been overrun and subdued by the Gurkhas, and the chiefs were fugitives, or reduced to poverty. By the treaty, Nepal renounced all claim to territory west of the river Kali, and their lands were restored to the hill Rajahs on certain treaty conditions, except Dehra Dún, Kamaun, part of Garhwal, Sabathu, and a few military posts, which were annexed. All are under the Punjab Government except Garhwal, which is within the jurisdiction of the North West Provinces. At the end of the Nepalese War, the old Rajah of Garhwal was found living in great poverty at Dehra. The portion of his hereditary dominions west of the Alikamunda river was restored to him, the land to the east, and Dehra Dún, being appropriated by the British Government. In March 1862, the Rajah of Garhwal received a *sanad* guaranteeing the right of adoption. He pays no tribute, and has no troops, his revenue being about 8,000*l.* a year, and the population of his dominions about 200,000.

There are 32 Himalayan Hill States under the Punjab Government, including Kashmir; which may be conveniently grouped, with reference to geographical position, in the following order:—

Six in the Himalayas beyond the river Satlej:—

Kashmir.	Sukeit.
Chumba.	Kailut.
Mandi.	Bassahir

Twenty-six in the highlands on the hither side of the Satlej, in four groups, according to position.

In the northern group there are seven:—

Mangal.	Kumharsain.
Bhagal.	Kotgurh.
Bhajji.	Kanuti.
Shangri.	

In the east central group are ten:—

Keonthal.		Raienguoh.
Koti.	Tributary to Keonthal.	Balsan.
Madhan.		Dargoti.
Theog.		Tarochi.
Gund.		
Pandur.		

Six in the west central group:—

Mailog.	Kuthar
Bega.	Kunhiar.
Baghat.	Dhami.

And three in the southern group:

Nalagurh.	Jubal.
Nahun.	

By far the most important is Kashmir, the ruler of which holds a most commanding position as regards trade routes, and rules over a country with great natural advantages, and the resources of which are capable of much future develop-

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ment. The State of Kashmir was founded by Golab Sing, a Dogra Rajpút, who began life as a horseman, and afterwards became a trusted officer under Runjít Sing, who conferred upon him the principality of Jammu. He subsequently extended his authority over Ladak and Kashmir; and eventually secured his power by a separate treaty with the English at Amritsar, on the 16th of March 1846. He bound himself to acknowledge the supremacy of the British Government, and to refer all disputes to its arbitration. Golab Sing died in 1857, and was succeeded by his son, Runbír Sing, the present ruler, to whom the right of adoption was guaranteed by a sanad, dated the 15th March 1862. He is a G.C.S.I. The ruler of Kashmir issued an Annual Administration Report for the first time in 1872. The population of Kashmir and Jammu is 1,537,000, and the revenue 843,000*l.* A military force of 26,975 men is maintained. A tribute of one horse, twelve shawl goats, and three pairs of shawls is paid to the British Government. The value of the silk industry has increased from *Rs.* 8,000 to *Rs.* 186,000. The jails and dispensaries are carefully attended to, and the state contains 220 village and 12 higher schools, which are well managed. Of the other states north of the Satlej, Chumba, Mandi, and Sukeit are ancient Rajpút principalities, to all of which the right of adoption was conceded by sanads in 1862. Mandi has an area of 1,080 square miles, with a population of 135,000, a revenue of 37,500*l.* and pays a tribute of 10,000*l.* a year. Chumba has an area of 3,216 square miles, a population of 110,000, a revenue of 18,550*l.*, and pays a tribute of 500*l.* a year. Sukeit has an area of 420 square miles, a population of 44,966, a revenue of 6,340*l.*, and pays a tribute of 1,100*l.* Chumba and Bassahir rent their valuable deodara forests to the Forest Department, and Chumba made over the land for the sanatorium of Dalhousie to the British Government.

The twenty-six hill States to the south of the Satlej are very small, and were all created after the expulsion of the Ghurkas by sanads in 1815. The most important is Nahun or Sarmúr, in the southern group, whose chief receives a salute of seven guns, and has 90,000 subjects. The State of Baghat has had two failures of heirs within the last 40 years, and was twice saved from annexation, by Lord Ellenborough in 1842, and by Lord Canning in 1862, when it received a sanad guaranteeing the right of adoption. The cantonment of Kussowli is built on land obtained from the Chief of Baghat. The Rajah of Kunthal has authority over six smaller States, which pay him tribute. Transit dues were abolished in the hill principalities in 1847, and a compensation amounting 1,373*l.* a-year, to be divided among them, is paid by the British Government. These hill chiefs, who are Rajpúts of good lineage, have all received sanads guaranteeing the right of adoption.

The Afghan and Biloch tribes, which form a very troublesome fringe along the border of the British territory beyond the Indus, have always been a source of disquietude and anxiety. Between 1849 to 1855 there were 15 expeditions against these robber tribes, and seven between 1856 and 1864. The fringe is described by Sir Richard Temple as commencing from the top of the glen of Kaghán, a dependency of Hazára, at the north-west angle of the Kashmir territory, then passing round the north-west boundary of Hazára, crossing the Indus, and winding round the north and north-west boundary of the Peshawur valley to the Khaibar pass, thence round the Afridi hills to Kohat, along the western boundary of the Kohat district, and the Waziri hills to Bunnu and the head of the Sulaimani range; and lastly, down the base of the Sulaimanis to the confines of Sindh. The length of this line is 800 miles.

Adjoining the frontier of the Hazára district are the Hasanzais in a strip of mountainous territory between the frontier and the Indus, dwelling, therefore, on the left bank of that river. The principal hill, called the "Black Mountain," from its dark and gloomy aspect, was scaled by a British force employed in furnishing a raid, in 1853. The number of Hasanzais is guessed at 2,000 fighting men. Next, below the Hasanzais, are the Judúns of Mount Mahábun, on the right bank of the Indus. They have lately been quiet; but at the foot of this mount, and on the banks of the Indus, was the fanatic colony of Sitana, followers of a Ghazi, or warlike devotee who rose against the Sikhs, and was eventually slain by a son of Runjít Sing. These people were ill-conditioned, and endeavoured to arouse the bigotry of the surrounding Muhammadan tribes, especially of the Swatis. The King of Swat was, indeed, elected to his present position from among them. In 1863 there were prolonged operations against the fanatics of Sitana, entailing a total loss of 847 killed and wounded; but the fanatics were expelled. Beyond Judún on the north-west, is the Bunur country, extending from the lower range of the Hindu Kush, down to the hills which command the plain of Yusufzai, with Swat on its western frontier. The Bunurs are said to be numerous.

The Swat country consists of a long valley, separated by a lofty range from the British frontier. The river, after fertilising the Swat valley, forces its way through a gorge in the hills, and flowing across the Peshawur valley, falls into the Kabul. The population of the Swat valley is about 100,000, of whom 20,000 are fighting men. They form several clans united under an elective chief, called a King, with an Akhund, or high priest, who is held in great veneration. Between the Swats and the British frontier are the Ranizais and Osman Kheyls. These people gave much trouble by their raids, and in 1852 a force under Sir Colin Campbell advanced into their country, and inflicted severe chastisement. The Ranizais submitted, and have never given further trouble. The Osman Kheyls have also profited by the lesson. The Yusufzais are within British territory, and are a martial and brave race, but they have now become good subjects, and the allowances to their chiefs have been confirmed.

Then come the Momands, whose country extends from the Swat border to the Kabul river. Their capital, Lalpura, is on the left bank. They own a nominal allegiance to the Kabul Government, and are divided into six clans, three of which border on the Peshawur valley. They number about 17,000 fighting men, and as the grazing lands of the villages in the valley are immediately under the Momand hills, their temptations were certainly great. It was necessary to give them a motive for forbearance, and in 1851 Sir Colin Campbell took the field against Saadit Khan, their chief. After two campaigns they were sufficiently beaten, the fort of Michmi was garrisoned to overawe them, and they have never again appeared in a body. The three clans on the border were left to make their own arrangements. They agreed to pay a small tribute and to remain loyal, and they have adhered to their bonds.

After the Momands come the Afridis, who form the most important tribe on this frontier. Their territory borders on the western frontier of the Peshawur valley, and, projecting abruptly into British territory, separates the districts of Peshawur and Kohat. The Afridi hills lie between these two districts, and are crossed by the Kohat and Jewaki passes. The Afridis are independent, fierce, and treacherous, and can muster 24,500 fighting men, 697 of whom are now serving in the Punjab frontier force. They are fine, tall, athletic highlanders, lean but muscular, with long gaunt faces, high noses and cheek bones, and dark complexions. The different clans have feuds among each other, and while operating against one, others can always be induced to be our allies. The Afridis of the Khaibar pass are considered the most faithless. Those of the Kohat passes are great traders, carrying the Kohat salt to Peshawur, and cutting and selling firewood. In 1849 it was agreed to pay them 570*l.* a-year to protect the pass, but in the next year a party of sappers, working on the roads, was cut to pieces by them. Sir Charles Napier then marched into their country and destroyed their villages. In 1853 an arrangement was made by which six Afridi clans received allowances and undertook to keep the pass open. The Orakzais are another tribe bordering on Kohat, numbering about 30,000 fighting men. There are two other clans forming part of this tribe, the Sipahs and the Bazotis. In 1854 the Orakzais were in open feud, and Sir Sydney Cotton marched against them and destroyed their villages, inflicting severe loss. They have been tolerably quiet since, but the Bazotis are great cattle lifters. The Waziris are the robbers of the Gomul pass, and other parts of the Sulaiman range. They are one of the largest and most important tribes, as holding a pass through which much of the traffic is conveyed between India and Central Asia. Their total fighting strength is 43,900, some within British territory, one clan at Bunnu, others on the higher spurs of the Sulaiman range, where there is a little cultivation in the valleys, and on plateaux at the bases of high mountains. The Waziris owe no allegiance to Kabul. The Batanis are a tribe of Afghans on the outer spurs of the Waziri hills, adjoining the southern side of Bunnu, and the northern limit of the Dera Ismail Khan district, from the Shamla Kurd pass to the Gomul valley. They often act as guides to the Waziri raiders. The Biloch frontier tribes, further south, including the Kasranis, Bozdars, Khutrans, Kosahs, Lagharis, Gurchanis, Murris, and Bugtis, number about 130,000 fighting men. The Kasranis extend from the Korak pass for about 50 miles, and muster about 1,200 men, who are great thieves. Then come the Bozdars, who extend along the British frontier for about 20 miles, in a range intersected by the Sûngurh and eight other passes. The Khutrans are a tribe of 3,000 fighting men, but they are Pathans, surrounded by Bilochis, and live behind the Bozdar hills. The Kosahs consist of 1,200 fighting men, partly in the plains, at enmity with the Bozdars above them, and Lagharis below them, but on good terms with the Khu-

tranis. The Lagharis have always been a loyal and well affected tribe. The Gurchanis are a debased and thieving set, numbering about 2,000, of whom only one is respectable. The Murris are a strong tribe,numbering over 4,000 fighting men, who used to commit raids in the lower extremity of the Derájat. The Bugtis often serve in the Punjab cavalry and Sind horse. They are subjects of the Khan of Kelat.

During the former year 1871–72 the frontier was at peace, but in July 1872 there was a raid of the Waziris of the Jalla Khel clan; and on the 21st of March, 1873, Major Macdonald was foully murdered by an Afghan of the Momand tribe, named Bahram Kham, at the Michmi fort. The assassin himself, who seems to have had no adequate motive, is still a fugitive, but steps have been taken to punish accomplices. A frontier police is being organised, and very light assessments are being settled on frontier villages, as payment for police services.

The important group of Sikh States, on the Sirhind Plain, occupies a large space of the classic land between the Satlej and the Jamna now needing irrigation, and thirstily waiting for the Sirhind Canal, but once watered by the historic Saraswati. The connection of these States with the British Government commenced when Runjit Sing, by the Treaty dated April 25th, 1809, engaged to make no encroachments on the rights of the chiefs on the left bank of the Satlej. Afterwards there was a proclamation, dated May 2nd, 1809, promising protection to the Sirhind chiefs, exacting no tribute, but requiring service in time of war. After the first Sikh war, all but ten larger Sirhind States were deprived of sovereign power, and bound to pay a commutation tax, in lieu of military service, of two annas in the rupee, or 12½ per cent. on their incomes. The sovereign Cis-Satlej States are Patiala, Jhínd, Nabha, Kalsiah, Maler Kotla, Faridkôt, and three small ones, Dyalgurh, Mumdôt, and Raikôt. The State of Kapurthala is separate from the others, and actually on the banks of the Bias. Of these, Patiala is far the largest and most important.

The founder of the Patiala State, a Sidhu Jât named Choudri Phul, rose to power about two centuries ago, and his descendants, who are Sikhs, have been sovereigns for about five generations. The chiefs of Patiala, Jhínd, and Nabha, have a common ancester in Phul, and their families are known as the Phulkian houses. The Chief of Patiala, for his aid in the Nepalese war, received portions of the Baghat and Kunthal Hill States; and in 1830 he gave up Simla to the British Government, in exchange for three villages in the plains. In 1847 he received a sanad confirming him, and his descendants for ever, in his possessions, and binding him to administer justice and promote the welfare of his people, to relinquish all transit dues, and to attend with his forces in time of war. The Government gave up all claim to tribute, or to any share of the Patiala revenue. In 1857 the Patiala troops did excellent service by keeping open the grand trunk road during the mutinies. In 1860 the Patiala Chief received a new sanad, in which the British Government promised never to demand tribute, conferred the right of adoption in default of heirs, and conceded the power of life and death. The chief was bound to co-operate in war, and to furnish material and grant land for railways on payment. In 1861 Narindar Sing, the late Maharajah of Patiala, was invested with the Star of India, and became a member of the Governor General's Council for making laws and regulations. He died on November 13, 1862. The present Maharajah, Mahindar Sing, was born in 1852. He has been well educated, speaking English and Persian. He takes the greatest interest in the progress of his country and the good of his people, and has introduced the English systems of civil and criminal procedure. A branch of the Sirhind Canal will be under his direct management. He has received the Star of India (G.C.S.I.), and is entitled to a salute of 17 guns. His territory has an area of 5,412 square miles, and a population of 1,650,000. The revenue is about 380,000*l*. The Jhínd Chief, a well informed and able ruler, is of the same clan as Patiala, being descended from a common ancestor. He was the first to march against the mutineers at Delhi, his troops being the vanguard of the English army; and he remained in the camp until Delhi was taken. For this service he received a grant of additional territory, and a sanad, in 1860, with full privileges of adoption, and the right to a salute of 11 guns. The Rajah of Jhínd will also have charge of a branch of the Sirhind Canal. He performs all important administrative work himself, decides cases, and conducts correspondence. The Jhínd territory has an area of 863 square miles, with a population of 189,475, and yields a revenue of 40,000*l*. The Rajah of Nabha comes from the same stock as those of Patiala and Jhínd, but belongs to the elder branch.

In 1860 Nabha received a sanad granting full rights of adoption. The present Rajah was only installed in August 1871, but he has shown considerable ability. This chief has also been guaranteed the right of adoption, and is entitled to a salute of 11 guns. Nabha has an area of 863 square miles, a population of about 227,155, and yields 65,000*l.* yearly revenue. Kalsia, Maler Kotla, and Faridkhôt also have the right of adoption. Kalsia has an area of 155 square miles, a population of 62,000, and a revenue of 13,000*l.* Maler Kotla is a Muhammadan State, the ancestors of the chief having been originally natives of Kabul. The chief who reigned in the beginning of this century joined Lord Lake, and did good service. The area of Maler Kotla is 165 square miles, the population about 46,200, and the revenue 25,900*l.* The Chief of Furidkhôt is a Jât. His territory lies south-east of Patiala, and covers an area of 643 square miles, with a population of 68,000, and a revenue of 30,000*l.* The three last chiefs are entitled to salutes of 11 guns. The minor Cis-Satlej Chiefs are reduced to the rank of ordinary Jaghirdars, or rent-free landholders, only male heirs having a right to the succession. They are eight in number, the largest having a revenue of 7,000*l.* The State of Kapurthala is separate from the group, and occupies an area of 598 square miles along the banks of the Bias, with a population of 253,293, and a yearly revenue of 75,700*l.* The family of the chief originally came from Alu, in the Bari Doab. The first treaty of the Rajah of Kapurthala with the English, signed on April 23rd, 1809, bound him to furnish supplies in time of war, but the then chief fought against the English at the battle of Aliwal, and his Cis-Satlej States were confiscated. He was, however, allowed to retain his property in the Jallandhar Doab, where his present State is situated. In 1849 the chief was created a Rajah, and, as a reward for good service during the mutinies, he asked for and received some hereditary property of his family in the Bari Doab. Kharah Singh, the Chief of Kapurthala has received a sanad guaranteeing the right of adoption. He pays a yearly tribute of 13,100*l.* to the British Government. Full particulars respecting the origin and history of the Cis-Satlej States, and of Kapurthala, will be found in a work entitled "The Rajas of the Punjab," by Lepel H. Griffin, Esq., B.C.S. (Lahor, 1870).

There are three Muhammadan States, besides Maler Kotla, which will most conveniently be grouped together. One on the Ramgunga, in the basin of the Ganges; the other two in the valley of the Indus—namely, Rampúr, Bhawalpur, and Khairpur.

Rámpur recalls recollections of the days of Warren Hastings and the Rohilla war. In the troublous times at Delhi, after the invasion of Nadir Shah, a Rohilla Afghan, named Ali Muhammad Khan, became the leader of a large force, received the title of Nawab, and after the Afghan inroad under Ahmad Shah, he made good his supremacy over the territory of Rohilkhand, which was confirmed to him by the Delhi Emperor. In 1792 the Rohilla chiefs, successors of the founder of the family fortunes, made an alliance with the Nawab of Oudh against the Mahrattas, agreeing to pay 40 lakhs to Oudh for protection. The Rohillas failed in their payments, and the Nawab of Oudh obtained the aid of Warren Hastings in his design to conquer Rohilkhand. The chiefs made a most gallant defence, but were completely crushed by the force under Colonel Champion, and the survivor, named Faizulla Khan, fled into the hills with the remnant of the Rohilla army. Colonel Champion signed a treaty, in 1774, by which Faizulla was guaranteed the possession of the estate of Rámpur, in the centre of Rohilkhand, on condition of military service to the Nawab of Oudh; which was commuted, in 1783, to a payment of 150,000*l.* In 1794 his successor was allowed to succeed to a portion of the territory, and was continued in possession, when Rohilkhand was ceded to the British Government in 1801. The Nawab of Rámpur is bound by an engagement to govern his people with justice, and to provide for the inferior Rohilla chiefs. In reward for services in the mutinies he received an additional grant of lands yielding 10,440*l.* a year, with the condition of respecting the rights of the landholders; and was assured that any succession to Rámpur, in accordance with Muhammadan law, would be upheld. The Nawab is entitled to a salute of 13 guns. He is aged 39, is well read in Arabic and Persian, and knows English and Hindi. Rámpur has an area of 1,140 square miles, and a population of 485,000 souls. The annual revenue is about 100,000*l.*, and a force of 1,700 men is maintained.

The Muhammadan State of Bháwalpur is separated from the Punjab by the Satlej, and is bordered on the south by the great desert, and on the west by the Indus: being 300 miles long, with a mean width of inhabited and cultivated territory of about 20 miles. The total area is about 15,000 square miles, and the area of cultivated territory, recently surveyed by two parties of the British Revenue Survey

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is 4,596 square miles. Of the latter area there were 788 square miles under cultivation, and 2,260 lying uncultivated, leaving 1,568 square miles of uncultivable waste. In the rear, to the south, there is also an area, now overlaid with sand-drift from the great desert, but which yet contains a vast extent of excellent soil, the irrigation of which is a mere question of money. The uncultivated area affords pasture for vast herds of camels, horned cattle, and sheep. An account of the irrigation of Bhawalpur has been given in a previous Section.* The dominant race are the Daudputras (or Davidsons), who claim descent from Abbas, the uncle of the prophet; and Sir H. Elliott holds them to be of the same stock as the Kulora dynasty of Sind. In 1737 their ancestor, Daud Khan, was a powerful chief settled in Sind, who, unable to hold his own against the governor of that province appointed by Nadir Shah, crossed the Indus with his clan, and gradually obtained possession of the tract now known as the Bhawalpúr State. Afterwards Mubarik, the son of Duáb, received a large grant of land on the other side of the Sutlej, from the Viceroy governing Multan under the Emperor of Delhi. The chiefs of the clan retained virtual independence until Bhawal Khan the First, grandson of Daud, reduced the whole to submission and consolidated his power. It was this chief who received Mr. Elphinstone's Embassy in 1808, when on its way to the Durani Court. Runjit Sing stripped his grandson, Bhawal Khan the Third, of all his possessions beyond the Sutlej, and would also have absorbed Bhawalpúr, had not the Nawab fortunately obtained an alliance with the British Government in 1827. On February 2nd, 1833, the first Treaty was signed, securing the independence of the Nawab, and opening the traffic on the Indus and Sutlej at a fixed tariff. The schedule of dues was revised by subsequent Treaties in 1835, 1838, 1840, and in 1843 were reduced one-half. In 1838 the Nawab loyally repaid our protection, by services rendered to the army marching against Kabul; and was rewarded by a second Treaty, dated October 5th, 1838, by which the British Government was recognised as supreme, and the Nawab bound himself to act in subordination to it. During the rebellion at Multan the army of the Nawab co-operated with Sir Herbert Edwardes; when the rebels were defeated, and hemmed within the walls of Multan until the arrival of the British army. This Nawab left the State prosperous and improving, but the Daudputra chiefs, after his death, intrigued to regain their independence by weakening the authority of his successors. In 1860, the reigning Nawab had addicted himself to such excesses and atrocities, that he incurred the grave displeasure of the British Government. He died in 1866, leaving an only son, a child then under his mother's care, who was a beautiful woman of good Daudputra lineage, though the daughter of a poor wood-cutter. In the same year the management of the State, during the minority of the Nawab, was assumed by a Political Agent, invested, under the general supervision of the Punjab Governor, with full powers for its reorganisation and administration. The principle laid down was to govern the country as far as possible through native officials, and to organise the administration on such a basis as that, at the Nawab's majority, which is fixed at 18 years, the government might be handed over to him in a condition to go on without check or friction in native hands. At the time of our assumption of the government, the State was in the last stage of exhaustion. Only two men of position were left in the country, the rest of the Daudputra chiefs were killed or dead in exile, and their families remained in abject poverty owing to the confiscation of their land for rebellion. There was no executive, and no officials worthy to be trusted in responsible positions. The treasury was empty, the officials were living on the people, the canals were falling into decay, and many cultivators had left the country and were working as yearly tenants, beyond the border. The first thing was to get money, and an honest treasurer. The late Nawab's debts were scheduled and are now being paid off, and arrangements were made to prevent embezzlement. The powers of the various State officers were restricted and defined, and a *levée en masse* of the people was made to clear the more important canals. This was the work of the first few months; and there have been steady efforts to organise the administration and develop the country, during the last seven years. The revenue used to be taken in kind, the Government share differing in every village, and the numerous cesses being of arbitrary amount, according to the pleasure of the revenue officer. This system has been replaced by cash payments at a fixed uniform rate for each kind of crop, arrived at by a division of every holding into fields with fixed boundaries and registered areas; the village area having first been scientifically surveyed. The assessment is light, and a vast extension of the cultivation of valuable crops, such as

* See page 51.

sugar-cane and tobacco, has been the consequence. There are 1,497 old rent-free grants, which have been demarcated and classified. The result of these measures has been that all the Bhawalpuri cultivators, who had abandoned the country, have returned; and many other agriculturists, with mattock on shoulder, and wife and children mounted on the plough bullocks, have come to work for the now prospering landholders. Efforts have been made for the peopling and cultivation of the waste lands, splendid work has been achieved on the irrigation canals, and transit dues have been abolished. The manufactures are confined to silk fabrics, the material for which is purchased from the Povindah merchants. There is one aided mission school in the capital, and 34 village schools. But perhaps the most important duty of the Agent was the education of the young Nawab, which was commenced in April, 1871, he being then ten years of age. He was a shy timid child, full of ideas of his dignity, having been brought up entirely among women and priests. He is now a hearty manly boy, thoroughly in hand yet full of fun, and entering heartily into all manly sports and exercises. He shoots well with a rifle, rides boldly, plays wonderfully at polo, is a good swimmer, runner, and jumper, and would hold his own with most English lads of his age and weight. He has an English tutor, and several relations of his own age are brought up with him. So that there is every reason to hope that, in 1879, the State of Bhawalpur may be handed over to a manly and well-informed native ruler, who will continue the good work that has been commenced.

Khairpur is the one native State in Sind in which the Mír Ali Murad Khan Talpur, by separating himself from his kindred, succeeded in retaining his paternal inheritance. When the Talpurs drove the previous dynasty of Kalhoras from the sovereignty of Sind, Mír Sohrab Talpur received, as his share, the district of Khairpur. He abdicated in 1811, and was succeeded by his son, Mír Rustam. But by a will dated 1829, the country was divided among Sohrab's three sons, Rustam, Mubarak, and Ali Newad, the former being Rais, or head of the family. Rustam and Mubarak combined to avail themselves of the youth and inexperience of Ali Murad, the youngest brother, who was only fifteen in 1830. When he grew up, Ali Murad resolved to lose no opportunity of retaliation. On April 4th, 1832, the British Government recognised the political individuality of Khairpur by signing a treaty with that State, to provide for the use of the river Indus, and of the roads in Sind. Another treaty was signed with Mír Rustam by Sir H. Pottinger, on December 25th, 1838, providing that the fort of Bukhar on the Indus should only be occupied by the English during war. Thus the separate individuality of Khairpur, as regards the Mírs of Haidarabad in Lower Sind, was recognised. Mubarak died in 1839; and in 1842 the family feuds rose to such a height that a battle was fought, ending in an agreement signed on September 15th, 1842, and known as the "Nounahar Treaty." On the arrival of Sir Charles Napier in the same autumn, Ali Newad complained to him that Rustam was intriguing to rob him of his rights in favour of his own son, and Sir Charles engaged to support his claim against his nephew, but not against his brother, Mír Rustam. From that moment Ali Murad took his side. Rustam was now aged 85, and when vast cessions of territory were demanded by Sir Charles he became terrified, and, with other Mírs of his family, fled into the desert. Ali Murad then became Rais of Khairpur. The battle of Miani followed, and all Sind was annexed with the exception of Khairpur. Ali Murad had his revenge. The State then contained a population of 800,000 souls, and yielded a revenue of 150,000*l*. But the astute Rais overreached himself. In the "Nounahar Treaty" he alleged that Rustam and Nasir Khan, a son of Mubarak, had ceded to him certain territory which he claimed. But it was discovered that he had committed a forgery, by substituting the word "district" for "village," and interpolating several names. A Commission reported his guilt, and in a proclamation of Lord Dalhousie, dated January 21st, 1852, he was degraded from the rank of Rais, and deprived of all his territory except the hereditary possessions allotted to him by his father, Mír Sohrab Khan. Ali Murad is now aged 60, and has several sons, Mír Shah Nawaz being heir apparent to the chieftainship of the Khairpur State. This principality is bounded by the Indus on the west, and the Rajpút state of Jasalmir on the east, about 120 miles long by 70 broad, with an area of 6,109 square miles. It consists of a great alluvial plain, divided into six districts, and has 106,888 cultivated acres watered by six canals, including the Eastern Narra.* The revenue is collected in kind, on the old *battai* ystem,† and yields about 45,350*l*.

* See page 56. † See page 30.

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The States of Central India, consisting of the territories of Sindia, Holkar, the Begum of Bhopal, Dhar, Dewas, the Bandelkhand States, and numerous feudatory chiefships, lie on the elevated tract between the Narbada and the valley of the Ganges. The valleys of the Narbada and the Son form a continuous and almost straight line of depression from the Gulf of Cambay to Patna on the Ganges; and thus the plateaux of Malwa and Bandelkhand, which comprise the territories of the Central India Native States, form a vast triangle, with the line of the Narbada and Son as the hypothenuse to the south, the Ganges valley as a second, and the Chittore hills and Chumbul river as a third side. To the south the great rock escarpment of the Vindhyan hills abruptly terminates the table land, and overhangs the valley of the Narbada, presenting the appearance of a weather-beaten coast line. From its summit the northern slope to the Ganges commences, the region consisting of a broken plain country with ranges of hills, watered by the rivers Chumbul, Sind, Betwa, Tonse, and Son, all flowing north to the Jamna and Ganges. This country was the scene of an ancient civilisation. Here, at the Court of Oujein, flourished the famous dramatist Kalidasa, and centuries afterwards, at the same city, the astronomer Jey Sing erected his observatory. But in later years the plateau was the scene of incessant wars; it was crossed and recrossed by Mahratta armies, whose generals, Sindia and Holkar, carved out sovereignties for themselves at the expense of native Rajpút chiefs, and to these visitations succeeded the atrocities of the Pindari robbers. It is hardly possible to exaggerate the disorder and confusion which prevailed in Central India, when at last the British Government interfered in 1817. When the Peishwa Bají Rao overran Malwa in 1737 he only exacted *chout*, or a fourth of the revenues, but the state of the country, seventy years later, had become more dreadful than can be conceived. The Mahratta armies made annual expeditions for the purpose of devastating the possessions of their weaker neighbours; hordes of undisciplined marauders, called Pindaris, ranged with fire and sword from one end of Malwa to the other, the filthy dregs of a corrupted and savage people. The campaign of 1817 against the Pindaris, was one of order against anarchy, and at its close Sir John Malcolm became Political Agent of Central India. In 1817 there was not a district which was not in a state of ruin and confusion. In 1821 there was not an open enemy to the public peace.

The most important State of Central India is that of Gwalior, ruled over by the Maharaja Sindia. This prince's ancestor, Ranaji, originally a carrier of slippers to the Peishwa, rose to the command of a Mahratta army, and his son Mahloji Sindia, a powerful chief in Malwa, first opened intercourse with the British Government in 1781, when he signed a treaty of neutrality. He died in 1792, and his son Dowlet Rao Sindia officered his army with Frenchmen, and made a league with the Raja of Berar against the English, but his power was completely broken by General Wellesley, and he sued for peace. By the Treaty of Surji Arjengaum, signed on December 30th, 1803, he was stripped of all his territory in Hindustan, and deprived even of Gwalior. But this stronghold was restored to him by a subsequent treaty, dated November 23rd, 1805, when the river Chumbal was fixed as his northern boundary. He was also deprived of all claims to tribute from any state east of Kotah; for the Mahrattas had overrun all the territories of Rajputana, and oppressed the Rajput chiefs with heavy exactions. On the 5th of November, 1817, Sindia signed a Treaty against the Pindaris, and ceded Ajmír to the English by another dated June 25th, 1818. From that time the territories of Sindia came more immediately under the supervision of the English Political Agents. In 1817 there was not a district in Sindia's territory which was not in a state of anarchy. In 1821 its revenue had risen 25 per cent., and there was a deduction of 15 per cent. in the cost of collection. He then possessed about 33,119 square miles of territory with his capital at Gwalior. The revenue was 1,276,845*l.* in 1819, and 1,432,022*l.* in 1824. Dowlet Rao Sindia died in 1827 without a son, and his widow Baiza Bai was regent until 1833, when Ali Jah Jankoji Rao was adopted. He died in 1843, also childless, and his widow, Tara Raní, adopted a very distant relation named Babaji Sindia. The insolent folly of the Gwalior chiefs led to their total route in the battles of Punniar and Maharajpúr in 1843, and Lord Ellenborough generously refrained from using his right of conquest. A treaty was signed at Gwalior, on January, 13th, 1844, by which Sindia ceded territory for the maintenance of a contingent force, which was reduced to 6,000 horse and 3,000 foot, and for the payment of debts and the expenses of the war. In 1857 the contingent mutinied, and Sindia, who remained loyal, with his able minister Dinkur Rao, fled to Agra. As a reward for fidelity, his arrears were remitted, and he received a grant of territory, including the parganahs of Jaund

Nimuch, which again brings him in contact with Rajputana. In 1859 he was assured of the full right of adoption, and he selected a youth who was educated as heir apparent for seven years, under the name of Ranozi Rao Sindia. But in 1872 the Maharaja obtained the consent of the Governor-General to cancel the adoption. By a treaty signed on December 12th, 1860, an exchange of territory was effected. Sindia gave up all territories south of the Narbada, consisting of the Panch Mahals, except seven hereditary villages, in exchange for land on the Betwa river; and in 1861 the seven villages were exchanged for land on the Pahuj. He agreed to pay 2,000*l.* towards the Malwa Bhil Corps, and a subsidy for the construction of the Agra and Bombay road. Sindia is decorated with the Star of India (G.C.S.I.), and is entitled to a salute of 19 guns. His territory has a population of about 2,500,000, and yields a revenue of 854,961*l.* There are 12,390 villages in the 58 parganahs of Sindia's territory, yielding a land revenue of 655,883*l.*; the customs yield 60,000*l.*; and the tribute 139,078*l.* The expenditure for 1872–73 was 947,614*l.* Sindia is building a magnificent palace in the Italian style, on the plain below the south-east corner of the Gwalior Fort, with a front 142 yards, and side faces 176 yards long. The Maharaja has also contributed loans for two State Railways within the territory of Gwalior. In February, 1873, he held a camp of exercise at Gwalior, consisting of 5,000 infantry, 3,470 cavalry, and 40 guns, himself commanding the attacking force, and sharing the bivouac with his men. The strength of his army amounts to 22,539 officers and men. The Maharaja personally superintends the administration.

Holkar, the second great chief of Central India, is descended from Mulhar Rao, a Sudra of the shepherd caste, who was a general in the first Mahratta invasion of Northern India. Jeswunt Rao Holkar made war on Lord Lake, was defeated, and fled across the Satlej, where he signed a treaty on December 24th, 1805, depriving him of a large portion of his territory. He died in 1811; and his successor, Mulhar Rao Holkar, signed the Treaty of Mundisore, in January, 1818, resigning all authority over, or claims to tribute from the Chiefs of Rájputána. From that time the peace established by Sir John Malcolm in Malwa, secured increasing prosperity to Holkar's State, the capital of which is Indor. In 1817 his revenue was only 144,168*l.*; in 1821 it was 169,618*l.* In 1817 only 2,038 villages were inhabited in Holkar's territory. In 1818 the number was increased by 269, in 1819 by 343, and in 1820 there were 21,158 villages. Mulhar Rao Holkar died childless in 1833. There was adoption after adoption, and in 1844 Tukaji Rao Holkar succeeded. He was guaranteed the full right of adoption in 1862, is decorated with the Star of India (G.C.S.I.), and is entitled to a salute of 19 guns. The area of Holkar's territory, lying to the north of the Vindhya mountains is 8,318 square miles, with a population of about 576,000. The revenue is about 300,000*l.* a-year, and the State maintains 24,800 infantry, 3,300 cavalry, and 24 field guns.

The third great Mahratta family in Central India is that of the Puars, who were distinguished in early Mahratta history. The State of Dhar, which they still hold, was assigned to Amand Rao Puar by the Peishwa Baji Rao, in 1740. Mina Bai, a widow of his descendant, preserved the State from the incursions and aggressions of Sindia and Holkar for twenty years; and, by a treaty signed on January 10th, 1819, Dhar was taken under the protection of the British Government. In 1857 the State was confiscated for rebellion, and the parganah of Bairsea, which belonged to it, was given to the Begum of Bhopal. But the rest of the State was afterwards restored to the young chief, Amand Rao Puar, and Dhar has since been guaranteed the right of adoption, and is entitled to a salute of 15 guns. Dhar has an area of 2,091 square miles, a population of 125,000, and a revenue of 43,700*l.*, of which 1,965*l.* is contributed to the support of the Málwa Bhil Force. The ruins of Mandu, overlooking the Narbada valley, the ancient capital of the Málwa kingdom, are in the territory of Dhar.

The ancestor of the chiefs of Dewas, another Mahratta, received his territory from the Peishwa. The Dewas chiefs continued to be oppressed and plundered by Sindia, Holkar, and the Pindari robbers, until they were taken under protection by the English, in accordance with a Treaty dated December 18th, 1818. There are two chiefs in Dewas, descended from two brothers, who are equal in all things. They are guaranteed the right of adoption, and are entitled to a salute of 15 guns. The area of Dewas is 256 square miles, and the population 25,000. Out of the revenue of about 42,500*l.* a sum of 3,560*l.* is paid as a contribution to the maintenance of troops.

Bhopàl is the chief Muhammadan State of Central India, lying across the Vindhyan Mountains, between Indor and Ságar, and resting its southern frontier on

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the Narbada. It was founded by an Afghan in the service of the Emperor Aurungzib, who established an independent principality at Bhopál, and died there in 1723. The present family was founded by the Wazir Muhammad, who, for many years, maintained the integrity of Bhopál against the repeated attacks of the Mahrattas. Between 1809 and 1812 Sindia and Bhonsla of Nágpur made incessant attempts to crush the little Muslim State; and, when Bhopál was besieged by them, Muhammad made a gallant and successful defence. He died in 1816, and his son Nazar Muhammad made an alliance with the British Government against the Pindaris. By a Treaty dated February 26th, 1818, the independence of Bhopál was guaranteed, and it was arranged that the State should maintain a contingent force of 400 foot and 600 horse. The Nawab died the same year, leaving an only daughter, Sikandar Begum, who, by a cousin named Jehanghir Muhammad Khan, had an only daughter named Shah Jehan, born in 1844. Sikandar Begum, who conducted the administration with great vigour and ability, was proclaimed Ruler of Bhopál, with her daughter Shah Jehan as her successor. For her services in 1857 she received the parganah of Bairsiah, confiscated from the Dhar State, and was guaranteed the right of adoption. In 1863 she went on a pilgrimage to Mekkah and, dying, was succeeded by her daughter. The present Nawab Shah Jehan of Bhopál was decorated with the Star of India (G.C.S.I.) at Bombay in 1872, and is entitled to a salute of 19 guns. The area of Bhopál is 6,764 square miles, and the population 663,656. The revenue is 137,625*l.*, and the State maintains a force of 723 horse and 3,428 foot, besides 73 guns and 223 artillerymen.

The Nawab of Jáwra is the second Muhammadan chief of Central India; the founder of the family having been a brother-in-law of the Pindari chief Amir Khan. He has a sanad guaranteeing him the right of adoption, and is entitled to a salute of 13 guns. The area of Jáwra is 872 square miles, including the best poppy growing land in Málwa, which yields 100 chests of opium a year. The population is about 85,500. Out of the revenue of 65,524*l.*, a contribution of 16,181*l.* is paid for the maintenance of troops; and the State of Jáwra has 600 infantry and 175 cavalry.

Before the Mahratta invasion, great numbers of Rajpút chiefs held sway over the villages of Central India. Their property was parcelled out among the Mahrattas, and many of the original chiefs took refuge in mountain fastnesses and jungles, avenging themselves by levying contributions on the villages of which they had been deprived. At last the larger States were compelled to purchase quiet by allowing the ancient chiefs a share of the revenue, and they thus became tributary to Sindia, Holkar, and the Puar chief of Dhar; and not seldom to all three. The British policy, inaugurated in 1818, was to declare the permanence of rights existing at the time of occupancy, and to adjust and guarantee the relations between the tributary chiefs and the larger States. The result was the virtual surrender of supremacy over the petty chiefs, on the part of the Mahratta States, to the British Government. Some chiefs have an express guarantee that the feudal superior shall be excluded from interference in the administration of their affairs. As regards succession, it is guaranteed to direct heirs, but not to adopted heirs unless there has been previous recognition, and on a failure of heirs the escheat is to the feudal superior, not to the British Government. None of these chiefs have the power of life and death. In Western Málwa there are 21 tributary Thakurs or chiefs, paying tribute to Sindia, or to Sindia and Holkar, and 5 also pay to Dewas. The most important is the Thakur of Rutlam, who, by an agreement made in 1819, paid 8,400*l.* to Sindia, which under the Treaty of 1860 is now paid to the British Government. Rutlam has an area of 500 square miles, with a population of 94,839. It is the chief opium mart of West Malwa, and the State yields a revenue of 36,406. The Rajah of Ratlám is now 13 years old, and the State is administered by Mir Shahamut Ali C.S.I. Sillana and Sitambán were once part of Ratlám, and are held on the same conditions. Piploda is tributary to the Nawab of Jáwra, the rest to Sindia, Holkar, and Dewas. West Málwa is subject to the inroads of the wild Bhils of Banswara and Pertabgurh, and in 1861 the frontier Thakurs entered into an agreement to unite and oppose these incursions. In the Bhil Agency there are fourteen petty chiefs, of which four which pay no tribute, their subjects being chiefly or entirely Bhils. The others pay either to Sindia or to the chief of Dhar or both. Under Gwalior there were eight chiefships; but that of Amjhera was confiscated for rebellion in 1857. There are nine chiefships under the Maunpur or Deputy Bhil Agency, fourteen belonging to Indor, and twenty-four to Bhopál, paying tribute to Sindia Holkar, Dhar, Dewas, or Bhopál. A few are immediately

dependent on the British Government. Altogether there are ninety of these tributary chiefs in Central India.

The Central Indian States are divided, for purposes of superintendence and diplomatic intercourse, into eight Political Agencies. The West Málwa Agency has Rájputána on the west, Indore and the Vindhyan hills on the south, Bhopál on the east, and Kota and the plain of Haraoti on the north. A broken scarp, with wild hilly country in the rear, connects the Vindhyan with the Arávali hills in Rájputána. In its rear is the Bhíl Agency, controlling the wild tribes in the western extreme of the Vindhyas, and including Amjhera and Dhar. The Deputy Bhíl or Manapur Agency is chiefly on the south side of the Narbada, to the foot of the Sátpura hills. The Indor Residency includes Holkar's Territory, Dewas, and Bagli, belonging to Sindia; the Bhopál and Gwalior Agencies are conterminous with those States, and that of Gúnal comprises a broken and difficult part of Sindia's territory.

Bandalkhand forms the eastern part of the great triangular plateau of Central India, and is inhabited by the peculiar Hindu tribes of Bandelas on the west, and Bhagelas in Rewah on the east. To the west is the river Betwa flowing to the Jamna; to the east is the Son, with the Kaimur range, a continuation of the Vindhyas, rising up along its left bank. The Púna range, with deep ravines and isolated crags on its north-western face, traverses Bandalkhand, and there is a broken plateau between the Púna and Kaimur ridges, watered by the Tonse, a tributary of the Ganges. Here is the military station of Nagode, and below the Púna ridge is Nowgong; but still on the higher ground. To the north Bandalkhand terminates in an amphitheatre of precipices, shaping the country below into a bay, bounded by sandstone cliffs, which again advance to near the Jamna at Mirzapur. These were the cliffs of a great sea in the far off days, when the *sivatheria* and other gigantic Sawalik mammals roamed over the lower Himalayas; and the wild scenery indicates the changes of the passing ages.

The largest of the native States on this plateau, which bounds the Ganges valley on the south, is Rewah, whose Rajah, in 1812, agreed to acknowledge British sovereignty, to refer all his disputes to arbitration, and to permit British troops to march through, or be stationed in, his territory. But he attempted to starve one detachment, so, on June 2, 1813, he had to sign another treaty, defining his relations more clearly. The Maharajah of Rewah was loyal during the mutinies in 1857, and received, as a reward, the interesting district of Amarkantak, which contains the sources of the Narbada, the Son, and the Mahanadi. In March 1862 he was guaranteed the right of adoption; he is decorated with the Star of India (G.C.S.I.), and is entitled to a salute of 17 guns. Rewah extends from the Tonse across the Kaimur range, and beyond the Son river to the sources at Amarkantaki, and has an area of 12,723 square miles. The population is about 1,280,000, and the revenue 260,000*l.*, of which 160,000*l.* is alienated in jaghirs and religious grants. Rewah is reported to be sadly backward. The debts of the State amount to 67,361*l.*

The next State of importance in Bandelkhand is Oorcha or Tehri, at the western end of the plateau, beyond the river Betwa; and, though second in importance, its chief is of the most ancient family, and highest in rank. He was never held in subjection by the Peishwa, and when, in the first treaty of friendship with the British Government, signed on March 15, 1804, he acknowledged its permanent sovereignty, the then chief said that it was the first time the State of Oorcha had made such an admission. The Oorcha chief was loyal in 1857, and received a sunnud guaranteeing the right of adoption. He is entitled to a salute of 11 guns. The area of Oorcha is 2,160 square miles, and the revenue about 60,000*l.*

Duttia, to the westward of the Betwa, is a part of the country ceded by the Peishwa in the treaty of Bassein. The first treaty with the British Government was signed on March 15, 1804, and the second on July 31, 1818. The rajah of Duttia has received the right of adoption, and is entitled to a salute of 11 guns. The area of his dominions is 850 square miles; and he pays tribute to Sindia for some of his land. Sumptur (Oomrah) also, west of the Betwa, was separated from Duttia in the generation before the British supremacy was established in Bandelkhand. It has an area of 175 square miles, and a population of 30,000. The rajah of Sumptur receives a salute of 11 guns, as also does the chief of Punnah, who merely holds his estate under a sanad. The young Maharajah of Punnah has lately made a tour to Calcutta, and is now constructing a fine road up the Birram Ghát, of the Vindhyan range, from the plain to the plateau on which Punnah stands.

There are 32 small chiefships in Bandelkhand, who pay tribute, and are bound by

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deeds of allegiance, holding their estates under sanads. The area they cover is about 6,300 square miles; and the size of the estates varies from 15 up to 1,240 square miles, and from a population of 2,500 to one of 120,000. Eight of the chiefs are descended from Chuttersal, the founder of the Bhandela chiefships; and only one, the Nawab of Baoni, with an area of 127 square miles, and 19,000 subjects, is a Muhammadan.

The most ancient sovereignties of India cluster round the Aravalli mountains, and in the valleys bordering on, or within, the Great Desert. The States of Rájputána have their eastern boundary on the Chittore hills and the river Chumbal, on the south they rest on the wild hill tracts inhabited by Bhil tribes, near the Gulf of Cambay, and to the north and west is the expanse of desert. The Aravalli mountains are thus within Rájputána, and Mount Abu rises to a height of 5,650 feet, near its southern border. The area is about 114,390 square mile, and the population may be 11,000,000 souls.

The Rájputs were established in this country before the dawn of history, and some of their chiefs claim descent from the Dynasty of the Sun. They offered a heroic resistance to Muhammadan invasion. Rana Sanka, of Odeypur, was the most formidable adversary of the Emperor Baber, and his family has ever been conspicuous for pride and exclusiveness. The other Rájput chiefs were glad to ally their daughters with the Emperors of Delhi, but the Ranas of Odeypur always haughtily stood aloof. The early Emperors, Akbar, Jehanghir, and Shah Jehan, never interfered with the religion of the Rajputs. They were philosophically indifferent, and Dara, the ill-fated son of Shah Jehan, wrote a book to reconcile the Muslim and Brahman tenets. The Rájputs, therefore, remained loyal; but the bigotry of Aurungzíb drove them to support the Mahratta invasion, and led to much future suffering. Rájputána was periodically overrun by savage armies of marauders. Sindia and Holkar enforced tribute from the Rájput chiefs, and the Pindari robbers reduced them to the verge of ruin. There were some treaties with Rájputána chiefs between 1803 and 1806; but they were broken off by the policy of non-interference introduced by Lord Cornwallis and Sir George Barlow; and it was not until 1817, when it was finally determined to destroy the Pindaris, and establish order in Central India, that negotiations were renewed. The object was to form a barrier against the Pindaris, as well as against the extension of the power of Sindia and Holkar beyond the limits which the British Government intended to fix. At that time there was no intention of interfering with the internal administration. There are 18 Rájputána States, of which 15 are Rajput, two Jât, and one Muhammadan.

The Rana of Odeypur, who rules over the State of Mewar, is the highest in rank and dignity among the Rájput chiefs. He is the representative of Rama, the King of Ayodya, and the present family was founded by Rama's descendant Kanaksen in A.D. 144. The smaller States of Dungurpur, Sirohi, and Pertabgurh, are offshoots from Odeypur. When Mewar had been laid waste by Sindia, Holkar, and the Pindari marauders, and the Maharana had been reduced to great distress, a Treaty was signed between Odeypur and the East India Company on the 13th of January 1818. The Maharana agreed to acknowledge British supremacy, to submit all disputes to arbitration, to pay a quarter of his revenue as tribute for five years, and three-eights in perpetuity; and in return he was promised protection, and that the British authorities, after investigation, would use their best exertions to secure the restoration to the Maharana, of dominions which, through improper means, had fallen into the possession of others. In 1821 the Maharana acquiesced in the arrangement by which Mairwara and the wild Mairs of the Aravalli hills were placed temporarily under British management, and so this matter still rests. In 1838 it was determined to raise a Bhil corps in the hill country to the south and south-west of Odeypur. This was done in 1841 and the Maharana has continued to pay a share of the cost, which was reduced to 9,800*l.* in 1861. Captain Tod, the first Political Resident, took charge of the administration of Odeypur in 1819, and in two years doubled the revenue. But there was afterwards great financial embarrassment, and in 1846 the tribute was reduced to 20,000*l.* There were incessant disputes with feudatory nobles, men of inordinate pride, who are mostly descendants of former Ranas; and there have been several attempts to settle the differences between them and their head, which the *kaulnamah* of 1854, negotiated by Sir Henry Lawrence, did not entirely effect. The area of Mewar is 11,614 square miles and the population 1,161,400. The revenue is about 400,000*l.*, of which 120,000*l.* is enjoyed by the nobles. The present Maharana Dheraj Sumbhu Sing succeeded in 1861. He is decorated with the Star of India (G.C.S.I.), and is entitled to a salute of 17 guns.

The next Rájputána State is that of Jaipur, which was founded in 967 A.D. The chief, who is a Cuchwaha Rájput, also claims descent from Rama. The family made alliances with the Delhi Emperors, and produced an astronomer and statesman, the illustrious Jey Sing. In 1803 political relations between Jaipur and the British Government were commenced, and a Treaty was signed on January 15th, 1804 with a view to excluding the Mahrattas from Hindustan. The chief of Jaipur heartily co-operated with Lord Lake against Holkar, yet, in spite of remonstrances from the General, Sir George Barlow, following a policy of non-intervention, broke the Treaty and dissolved the alliance. When overtures were re-opened in 1817, Jaipur naturally felt some reluctance to renew the alliance. But on April 2nd, 1818 a treaty was signed by which the chief of Jaipur agreed to pay a tribute of 80,000*l.* until the revenue exceeded 40,000*l.*, and five-sixteenths of the excess in addition. In exchange he received British protection. In 1842, owing to the large arrears of tribute, there was a remission of 460,000*l.*; and the annual payment was reduced to 40,000*l.* The present Maharaja is very anxious to obtain a change in the article of the treaty which makes the tribute fluctuate with the revenue. At present a sum of 35,000*l.* is spent on public works and irrigation, out of an income of 423,165*l.* There are receipts from the portion of the great salt lake of Sambur which belongs to Jeypur, amounting to about 40,000*l.* The area of Jaipur is 15,000 square miles, and the population about 1,900,000. A force is maintained of 4,600 infantry, 5,142 cavalry, and 452 artillery men. The Maharaja of Jaipur has received a sanad recognizing his right of adoption, is decorated with the Star of India (G.C.S.I), and is entitled to a salute of 17 guns.

The chief of Jodhpur, or Marwar, is a descendant of the Rahtore Rajpút King of Kanouj; and his ancestor founded Jodhpúr in A.D. 1459. The chiefs of Marwar were tributary to Akbar, served as generals in the imperial armies, and often intermarried with the family of Tîmûr. Maun Sing, the chief, in 1804 assisted Holkar; but on January 6th, 1818, a treaty was signed by which the tribute payable to Sindia was transferred to the British Government, and a contingent of 1,500 horse was to be maintained, in exchange for protection. The share of the Marwar chief in Maiwara was made over to the English in 1824 temporarily, and no definite arrangement has yet been made. On the 7th of December, 1835, the undertaking to maintain a contingent was commuted to an annual payment of 115,000*l.* towards the maintenance of the Jodhpur legion which was then raised. It mutinied in 1857, and its place is now taken by the "Erinpura Irregular Force," the commandant of which is also magistrate of Mount Abu. A younger branch of the house of Jodhpúr had become Rajahs of Edur and Ahmadnagar, in the Bombay Presidency; and in 1843, on failure of heirs, Tukt Sing, the Rajah of Ahmadnagar, became Chief of Jodhpúr. A portion of the tribute of 9,800*l.* was remitted on the cession of the fort and district of Umarkot, in 1847. The area of Marwar is 35,672 square miles, the population about 1,783,600, and the revenue 175,000*l.* The Chief is decorated with the Star of India (G.C.S.I.) and is entitled to a salute of 17 guns. He has the right of adoption.

The Maharao Raja of the State of Bundi is a Hara Rajpút. The exposed situation of this territory, on the Haraoti plain, led to much suffering from Mahratta inroads; but a treaty with the British Government was signed on February 10th, 1818, by which the chief bound himself to pay a tribute of 4,000*l.* in exchange for protection. The Maharao has the right of adoption, which he does not now need, as a second son was born to him in April, 1872. Bundi has an area of 2,291 square miles, with a population of about 220,000; the revenue amounts to some 50,000*l.* and a force is maintained of 2.700 foot, 700 horse, and 12 guns. The Maharao Raja of Bundi is entitled to a salute of 17 guns.

Kotah and Jhallawar, also on the Haraoti plain, are offshoots of Bundi. The first ruler of Kotah, 250 years ago, was a younger brother of the Chief of Bundi. A treaty was signed in December, 1817, by which the tribute formerly paid to the Mahrattas was to be paid to the British Government. In the early part of the century Kotah had a very able administrator in the minister Raj Rana Zalim Sing, who introduced a money assessment of the land in 1807. But there has been no attempt at keeping financial accounts in Kotah for years, though the revenue cannot be less than 240,000*l.* The country, which has an area of 5,000 square miles and a population of about 433,000, is shamefully misgoverned. The right of adoption has been guaranteed to the Maharao of Kota, but the Kota contingent mutinied in 1857, and the Chief gave no help, so his salute was reduced from 17 to 13 guns. The Kotah contingent is now represented by the "Deoli Irregular Force." Jhallawur is

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a new state, taken from Kota, for the descendants of the great minister, Zalim Sing, by a treaty dated April 10th, 1838. The state has an area of 2,500 square miles, a population of 220,000, and pays 8,000*l.* a year as tribute.

The State of Karauli, along the right bank of the Chambal, paid a tribute of 2,500*l.* a year to the Peishwa, who handed it over to the British Government by the treaty of Poona in 1817. In 1871 the income of the State was 45,098*l.*, and the expenditure 44,911*l.*; but the State is still heavily in debt to the Imperial treasury. The Maharaja Jaising Pal is, however, an intelligent, well-meaning man, and does a good deal of the work of the State himself. He has the right of adoption, and is entitled to a salute of 17 guns. The area is 1,260 square miles, and the population 140,000.

The State of Kishengurh is an offshoot from Jodhpúr, and its status is settled by a treaty dated March 26th, 1818. It pays no tribute. The Maharaja has the right of adoption, but he has two sons of his own, both lads of considerable promise. He is entitled to a salute of 15 guns. The area of Kishengurh is 720 square miles, the population 70,000, and the revenue about 60.000*l.*

The State of Ulwar was founded by Pertab Sing, an officer at the court of Jaipur. Observing that there were rings or circles in his eyes, a mark of royalty, the Maharaja made an attempt on his life, but he escaped to Bhurtpur in 1764, and afterwards, in the crisis of a battle with Jaipur, went over with his forces to his old master, and secured the victory. He was rewarded by restoration to favour, but on the death of the Chief of Jaipur he assumed independence at the head of the Naruka clan, and captured Ulwur, where he founded a dynasty. Pertab Sing died in 1791. In 1814 Bunni Sing became Chief of Ulwur, and reigned until 1857. He introduced a money revenue settlement, and collected a fine library. Under his son, Sheodan Sing, every department fell into utter confusion. It soon became necessary to assume the administration, and Captain Impey took charge in 1858; but the Rajah was allowed to take the reins in 1864. By 1870 the State was bankrupt, and anarchy existed in every department. The Maharao Raja, who is an impracticable violent man, was again pensioned off, and the administration was placed in the hands of Captain Cadell, the political agent. The Ulwar State is about 80 miles long by 60 miles, and has an area of 3,000 square miles; bounded on the east by Bhurtpur and the British district of Gurgan; on the north by Patiala and Nabha; on the west by Nabha and Jaipur; and on the south by Jaipur and Bhurtpur. The eastern part of Ulwur is open and highly cultivated, and to the west is a continuation of the Aravalli hills, rocky, precipitous, and intersected by deep valleys. The population, according to a census taken in April 1872, is 778,596, or 259·3 to the square mile, and the number of houses 119,266. The income of the State of Ulwur is 205,000*l.*; and the disbursements 165,000*l.* The Maharao Rajah has the right of adoption.

The distant State of Jasalmir, protected by its deserts, escaped the ravages of the Mahrattas, and, by a treaty dated December 12th, 1818, the Chief of Jasalmir acknowledged the supremacy of the British Government and promised perpetual friendship, but no tribute was exacted. The Maharawul of Jasalmir, in 1862, received the right of adoption. The march from Jodhpúr to Jasalmir is over 140 miles of arid country; but the town, when reached, situated in the centre of this desert, is one of the most healthy and beautiful in India, the stone houses being elaborately carved, and in excellent taste. The area of the State is 12,252 square miles, and the population about 70,000. The Maharawul is a young man of good disposition and amenable to reason.

The State of Bikanir was founded by a younger son of the Jodhpúr chief in A.D. 1505. The treaty of friendship with the British Government, dated March 9th, 1818, exacts no tribute, but it contains a clause to secure the freedom of transit, for in those days the trade between Central Asia and India, which now goes to Multan, passed through Bikanír. The present minister of the Maharaja of Bikanír is the well-known Central Asian traveller, Pundit Munphul (C.S.I.). The area of this desert State is about 17,676 square miles, and the population about 539,000 The chief is entitled to a salute of 17 guns.

The State of Serohi, in the far south-west of Rájputána, is an offshoot from Odeypur. The treaty, signed on September 11th, 1823, exacted a tribute of three-eighths of the revenue, and obliged the chief to govern in accordance with the advice of the British Government. To the south this State borders on Pahlampúr and other chiefships of the Bombay Presidency, and on wild hill tracts. Many of the Thakurs are constantly in rebellion and outlawry, and some have transferred their

allegiance to Pahlampúr. In 1845, the Rao of Serohi ceded Mount Abu to the British Government as a sanatorium, on condition that no cows or pigeons were killed on the hill. In 1857 he did good service, the amount of his tribute was reduced to 750*l.*, he received the right of adoption, and is entitled to a salute of 15 guns. Serohi has an area of 3,000 square miles, and a population of about 55,000. The receipts of revenue, in 1871, amounted to 23,444*l.*, and the disbursements to 23,434*l.*

Dungurpur is also an offshoot from Odeypur, and paid a tribute to the Mahrattas, which was transferred to the British Government by a treaty dated December 11th 1818, to the amount of 2,738*l.* The Maharawal, who is a highly intelligent native prince, and a good ruler, received a sunnud, giving him the right of adoption in 1862, and is entitled to a salute of 15 guns. His daughter is betrothed to the Maharawal of Jasalmir, and the State will be much impoverished by the large dower. The area of Dungurpur is 1,000 square miles, much of it a wild, hilly tract, inhabited by feudatory tribes. The revenue of the State is about 7,500*l.*

Pertabgurh, another junior offshoot of Odeypur, became connected with the British Government by a treaty, dated October, 1818; and pays a tribute of 5,688*l.* to Holkar through the Imperial treasury. The Maharawul has the right of adoption, and is entitled to a salute of 15 guns. His management of the criminal jurisdiction of his territory is reported to be very good. Pertabgurh has an area of 1,460 square miles, a population of about 150,000, and a clear revenue of 26,000*l.*

Banswarra was originally part of Meywar. By a treaty, dated December 25th, 1818, the Maharawal agreed to pay tribute not exceeding three-eighths of his revenue, which is about 30,000*l.*, and thirty-three feudatories receive 11,000*l.* out of it. He is entitled to a salute of 15 guns. The area of Banswarra is 1,500 square miles, and the population about 150,000.

The two Jât States of Rajputana are Dholepur and Bhurtpur, on the left bank of the Chumbul, facing Gwalior. Dholepur was founded by Luchindar Sing, Rana of Gohud, in 1799; and by a treaty, dated November 23rd, 1805, he received Dholepur, Bori, and Rajkerah, the river Chumbul being fixed as the boundary between his territory and that of Sindia. The Rana, who is a faithful and loyal feudatory, has the right of adoption, is decorated with the Star of India (G. C. S. I.), and is entitled to a salute of 15 guns. His heir is his grandson, a sharp and intelligent lad. The area of Dholepur is 1,626 square miles, and the population about 500,000.

Bhurtpur State was founded by a freebooter named Birj, who built a fort on the almost inaccessible rock. His descendant, Runjít Singh, in 1803, allowed Holkar to take refuge there, after the battle of Díg, and refused to give him up. Then followed Lord Lake's long and memorable siege, when four assaults were repulsed with heavy loss. After the surrender, a new treaty was signed on April 17th, 1805, when Runjít Singh received aguarantee of his dominions, on paying an indemnity of 220,000*l.* In 1826 a disputed succession led to interference, when there was a second siege, the fort was stormed, and afterwards dismantled. The Maharaja of Bhurtpur has received a sanad, guaranteeing the right to adopt, and is entitled to a salute of 17 guns. The territory embraces an area of 1,974 square miles, with a population of 650,000, and the revenue is 242,000*l.* No tribute is exacted.

Tonk is the only Muhammadan State in Rájputána. The Nawab is a descendant of the celebrated Pindari marauder, Amír Khan, who, by a treaty, dated November 9th, 1817, agreed to disband his army, and received a guarantee of the land he held in the territory of Holkar, on condition that he relinquished all connection with the Pindaris. He died in 1834, and his son did good service in 1857. The present Nawab had a son and heir born to him in 1871. The area of Tonk is 1,800 square miles, the population about 182,000, and the revenue 108,000*l.*

The political affairs of Rájputána are administered by the Agent to the Governor-General, who resides on Mount Abu. The region is divided into seven Political Agencies, each under an English officer, who transacts all political business with the native ministers. The Mewar Agency includes Odeypur, Pertabgurh, Dungurpur, and Banswarra; besides the Nimbahera Pargana, belonging to Tonk, the head quarters of dacoits; and Jawud Nímuch, a strip of territory which has been handed over to Sindia, and is now a focus of disorder. The Jaipur Agency includes Jaipur, Kishengurh, and Bikanír. The Marwar Agency deals with the States of Jodhpur and Jasalmir. The Marwar Agent is also President of the Marwar Interjurisdictional Court of Wakíls, to decide all disputes between the Rájputána States. During 1872, it held sessions at Mount Abu, Ajmír, and Jodhpur and decided 294

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cases, of which 82 were highway robberies. The Haraoti Agency overlooks the States of Bundi, Kota, Jhallawar, and Tonk; as well as the small State of Shahpura, whose chief, an offshoot from Odeypur, holds the Pargana of Khyrar from Odeypur, and Shahpura from the British Government, as part of Ajmir, paying 1,000*l.* a year as tribute. The Eastern States Agency includes Dholepur, Bhurtpur, and Kesowli. There is a special Agency for the Administration of the State of Ulwur; and finally the Political Superintendency for Sirohi completes the system. In Ulwur much accurate statistical information will now be obtained, and the Administration Reports from native ministers of some of the other States are yearly improving.

9. The Native States of the Bombay Presidency occupy 63,252 square miles, or one-third of the entire area, and have a population of 9,250,000 souls. They are divided, by race, language, and geographical position, into two main groups, the Gujrát States to the north, and the Maharati to the south.

The principal northern state is that of Baroda, occupying the largest portion of Gujrát, with parts of Khandesh and Katiwár, an unmeasured area, with a population of 2,600,000 souls, and a revenue of 150,000*l.* Khundi Rao Dharaboy was one of the most distinguished of the first Maharati leadars, and Damaji Gaikawar was his second in command. The former died in 1721. In 1755 the Gaikawar, a grandson of Damaji, wrested all Gujrát from the Moghuls, and entirely subverted their power at Ahmadabad. He was still the nominal feudatory of the Peishwa, and farmed the revenues for him over a vast region. On January 26th, 1780, a treaty offensive and defensive with the Bombay Government acknowledged the Gaikawar's independence of the Peishwa. Subsequent treaties arranged for the support of a contingent; and, when the agent of the Gaikawar was assassinated at the Peishwa's Court, the Bombay Government forced the latter to renounce all further claims on his former feudatory. This was followed by a treaty, signed on November 6th 1817, by which the Gaikawar agreed to certain exchanges of territory for purposes of consolidation, to increase the subsidiary force to 3,000 cavalry, and to a mutual surrender of criminals. Anund Rao Gaikawar died in 1819, and was succeeded by Syaji Rao Gaikawar, who reigned until 1847. The debts of the State rose to an enormous sum in his time, and he committed himself to a long series of unfriendly acts. He was succeeded in 1847 by Gunput Rao Gaikawar, who was followed in 1856 by Khundi Rao Gaikawar. This ruler ceded land for the Bombay and Baroda Railway, and in 1858 agreed to keep up a force of 3,000 cavalry, available for police duties in tributory districts, the former payment for the Gujráti Irregular Horse being remitted. He prohibited slavery in 1856, and conceded to the Bombay Government the right to control salt works, and open new ports on his sea board. The present ruler, Malhar Rao Gaikawar, aged 44, has been decorated with the Star of India (G.C.S.I.) He has received a guarantee of the right of adoption, and is entitled to a salute of 21 guns.

There are four Political Agencies around Baroda, consisting of groups of States which are or have been more or less connected with the Gaikawars by conquest or payment of tribute. These are the Pahlampur Agency, the Mahi Kanta, the Rewa Kanta, and Katiwár. The geographical position of the three first may be described as being on the broken scarp and slopes descending from the Malwa plateau to the west. This wild hill country connects the Vindhya Range with the Aravalli hills, and forms the south part of Marwar, Sirohi, Dongurpur, and Banswara in Rájputána; the western corner of Malwa and the Bhíl Agency: in short, the western rear of the great Malwa plateau. Where the broken forest-covered country slopes towards the gulf of Cambay and the Rann of Kach, are these Bombay Political Agencies—Palhampur, and the Mahi and Rewa Kantas. The country is watered by the river Mhai, breaking through the ridge and flowing into the gulf of Cambay, as well as by smaller streams; and is inhabited, for the most part, by Bhíls, Kulis, and other wild aboriginal tribes.

The Pahlampur group of States, eleven in number, lies to the north of the Gaikawar's territory, and is bounded on the north by Rajputana, on the east by the Mahi Kanta, on the west by the Rann of Kach, and on the south by Ahmadabad. It occupies an area of 2,700 square miles. The chief State in the group is Pahlanpur, which was founded by an Afghan of the Lohani tribe, who received the title of Dewan from the Emperor Akbar. The Dewan of Pahlampur pays tribute of 5,000*l.* to the Guikwar, which was fixed through an arrangement made with the Bombay Government in 1809. Owing to previous disorders a very minute control was maintained over the finances of this State until 1848, but now it is well managed, and its ten schools are under Government inspection. Zarawur

Khan, the Dewan of Pahlampur, now aged 50, was loyal during the mutinies, and has received the right of adoption. He has one son. The area of his State is 2,700 square miles, with a population of 215,972; and a revenue of 40,000*l.* A force is maintained of 294 horse and 697 foot. The State of next importance in this Agency is Radhampur, founded by an adventurer named Bahadur Khad, who came from Isfahan about 250 years ago, and received a grant from the Moghul Subadar of Gujrát, confirmed by a sunnud from the Gaikawar in 1756. In 1813 the Bombay Government induced the Gaikawar not to interfere in the internal affairs of this State, which pays no tribute. Zorawar Khan, the present Nawab, is aged 50, and is able to read and write Gujráti a little. He has four sons, and has received a sunnud authorizing adoption. The population of his State is 91,579, and it contains one school. The revenue is about 50,000*l.* The State maintains a force of 248 horse, and 362 foot. Of the nine petty chiefships, one only, that of Kankrej, pays 512*l.* tribute to the Gaikawar.

The native States round the Gaikawar's head quarters at Baroda were, in former times, subjected to his most devastating method of forcibly collecting the revenue. An army was periodically sent out on circuit, to take as much as could be obtained while also maintaining itself. It is astonishing how the people continued to exist under such a system. In 1812 the Government of Bombay induced the Gaikawar to accept its mediation, in the Mahi and Rewa Kantas, and in Katiwár, to effect settlements for the payment of tribute of fixed amount, instead of the rough and the barbarous exactions formerly extorted. This measure was an immense boon, indeed the saving of this part of India. The group of States in the Mahi Kanta entered into an engagement for a perpetual settlement of this kind, in 1812; and in 1839 a Court of Criminal Justice was established, under the presidency of the Political Agent. This group occupies on area of 4,000 square miles, and has a population of 447,000 souls. The principal State is that of Edur, which was founded by some younger brothers of the Rajah of Jodhpur, who also acquired Ahmadnagar, Morasa, and Bayer. They had numerous conflicts with the Rajput proprietors, and with difficulty held their own against the Gaikawar. In 1812 there was a family division of the estates, one branch taking Ahmadnagar, and the other Edur, the latter being under British management or control from 1837 to 1859. For when Jowan Sing of Edur died in 1833, there was a forcible *sati* of his widow, and the sons fled to the hills, eventually receiving an amnesty. The Ahmadnagar chief succeeded to the Rajahship of Jodhpur in 1843, and that estate then reverted to Edur, which now has a population of 217,382; for which there are 18 schools, with 915 scholars. The revenue is about 60,000*l.*, and 3,033*l.* is paid as tribute to the Gaikawar. The present Maharaja of Edur is only aged eleven, and the State is under attachment. Like the Johdpur chief, to whose family he belongs, he is a Rathor Rajput, descending from the Dynasty of the Sun. He is being educated by a private tutor. There are also 78 petty chiefs in the Mahi Kanta, 18 of whom are Rajpúts, and 13 Kulis, most of them belonging to families of notorious freebooters, and all paying tribute to the Gaikawar. But about 30 schools have been established among them, and peace is maintained

The Rewa Kanta is a group of chiefships with a still wilder population. The only chief, with first-class jurisdiction, is the Raja of Rajpípla, whose ancestors maintained their independence from the time of the great Akbar, to whom the then Raja paid tribute. In 1821 it was agreed that the Gaikawar should take 6,500*l.* as tribute from this State, paid through the Bombay Government; and in 1859 the Raja was also directed to pay 2,000*l.* a year towards the support of the Gujarat Bhíl Corps. The estimated population of Rajpípla is 150,000; and it now contains 11 schools with 463 pupils. Transit dues are levied, as in the other Rewa Kanta States, and the revenue is 80,000*l.* The other States in the Rewa Kanta are Chota Odeypur, Deoghur Baria, Lunawara, Soanth, and Balasinúr, with jurisdiction in capital cases, and 59 petty chiefships. Chota Odeypur and Deoghur Baria were founded by Chohan Rajpúts of the same family, and both obtained the British protection from Sindia, in 1803, under the treaty of Surji Argengaum. The former pays tribute to the Gaikawar, the other Rewa Kanta States to the British Government. All levy transit dues. The area of the Rewa Kanta is 4,879 square miles, with a population of about 487,647, and 45 schools have been established. The people are chiefly Bhíls and Mewassis, and in 1842 a Court of Criminal Justice was established among them, presided over by the Political Agent.

It will here be convenient to enumerate the States forming a group between Khandesh, Nasik, Tanna, and Súrat, with an area of 3,460 square miles, a population

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of 129,536, and a revenue of 45,000*l.* Near Súrat are the States of Sachin, Dharampur, and Bansda. Sachin, with a population of 19,000, is the State of Nawab Sidi Ibrahim, aged 42, a Muslim of Abyssinian descent belonging to the Jinjira family (*which see, further on*). Dharampur, with a population of 68,135, pays a tribute of 900*l.* to the British Government. Its Raja, now aged 32, is a Sisoda Rájput. Bansda, with a population of 32,379, also pays tribute. The Raja, aged 38, is a Solanki Rájput. Jawar, near Tanna, has an area of 534 square miles. The State pays no tribute. The population is 37,406, and revenue 8,200*l.* The Raja, aged 21, is still prosecuting his English studies at the Poona High School. His State was founded by a freebooter about 500 years ago. The State of Cambay was established by Mumin Khan, the Governor of Gujarat. The Nawab pays a tribute of 2,700*l.* to the British Government out of a revenue of about 35,000*l.* The population of his State is 83,494, in an area of 350 square miles; and there are 15 schools with 758 scholars. The Nawab, aged 59, knows Persian, and has been well educated. He has six sons. The Nassik State is Peint, which, from a revenue of about 5,000*l.*, pays 350*l.* of tribute to the Gaikawár and Bombay Government. It is under the direct management of the Political Agent. The population of the State is 47,033. The Mehwasi Tracts of Chickali, Gauli, Kathi, Singpur, Nal, and Nawalpur are in the country between the Narbada and Tapti, in the north-west corner of Khandesh. The population is 6,780, and the revenue 4,178*l.* The Collector of Khandesh, as Political Agent, tries all serious criminal offences, and others are settled by the chiefs. The inhabitants of this wild forest region are Bhíls, and the principal income of the chiefs is from the manufacture and sale of the liquor called *maura*. The Taluk of Surgána is in the south-west corner of Khandesh, and has an area of 360 square miles. There is also a small State in the Panch Mahals, the district ceded by Sindia in 1860, called Narakot, which pays a tribute to the Gaikawar and the Bombay Government, and has a population of 6,837, and one school. It is managed by British officials, who pay half the revenue to the chief. The ruling family belongs to the aboriginal race of Kulis, and the people belong to two tribes, Kulis and Naikras, the latter a turbulent race closely allied to the Bhíls. Narukot is a forest-covered State, as are the twenty-two chiefships in the Dangs of Khandesh, which cover an area of a thousand square miles, with a population of 30,000; and a revenue, derived from fees on timber, of 7,167*l.* The hills and dales of the Khandesh Dangs are covered with dense forest and the chiefs are of the Bhíl race.

The peninsula of Katiwár teems with native princes. The introduction of orderly and progressive government among them has been a task of great difficulty, and long duration for British officials have been working at it for nearly seventy years. Surrounded on almost every side by the sea, the peninsula, with an area of 20,000 square miles, and a population of 2,321,833 souls, is divided into four Prants, or districts, Jhalawár to the north, Gohilwar to the east, Sorath to the south, and Halar to the west. The chiefs of Katiwár, in the beginning of this century, encouraged piracy at sea, while they were themselves robbed by the periodical army of the Guikawar, which came to extort revenue, and almost ruined the country. In 1807 the British Government resolved to introduce a remedy for these evils by inducing the Guikawar to enter the peninsula with a joint army, and to make arrangements to commute the variable collections for a fixed money payment. These settlements were made with no less than 153 chiefs, who agreed to pay the fixed tribute regularly, to respect each other's possessions, and to make the highways safe. It was a very grave matter for the Gaikawar, as much of his revenue depended upon the realisation of the Katiwár tributes. The amount fixed in 1807 was 90,741*l.*, and in 1820 the Gaikawar agreed to send no troops into Katiwár, the supreme authority being vested in the British Government. In 1831 a Criminal Court of Justice was established, consisting of the Political Agents, with native chiefs as assessors, for the trial of capital crimes.

The Katiwár chiefs are mainly Rájputs, and, except among the leading families, the custom is for the property of the father to be divided among all the sons. These shareholders are called the *bhayad* or brotherhood of the head of the family. They claim the same powers in the estate, and to make a separate settlement for the revenue; so that two kinds of agreements were necessary in 1807, one with the *bhat* or chief for the peace of the country, and another with the *Bhayads* for the payment of a fixed revenue in perpetuity. About 80 petty states have been absorbed since 1807, yet the constant subdivision of inheritance has led to an increase, and there are now 418 separate jurisdictions, most of them claiming only two, one, or

often only a fraction of a village. There was a system of sanguinary boundary disputes, murders, robberies, and outlawries for purposes of depredation. The crime of infanticide was almost universal among the Jhareja and Jetwa Rájputs of Katiwár, and in 1807 Colonel Walker persuaded twenty chiefs and their *bhayads* to sign an agreement prohibiting it, and giving the British Government the right to punish offenders. In 1825 an Infanticide Fund was formed, from fines and other sources, to induce the poorer Jharejas not to murder their daughters by paying the marriage expenses, the dread of which outlay being the chief motive for the crime. Thus Katiwár was a troublesome region to manage, the poverty and discontent of the *bhayads* forming the chief danger to the public peace.

In 1863 there was a change of policy in Katiwár, and the jurisdictions of the chiefs were classified. The great chiefs have civil and criminal jurisdiction, and the political assistants have the power of zillah judges, with appeals to the political agent; while the native Thanadars act as civil judges in 134 divisions. A tribunal, called the Rajasthanik Sabha, has also been established, at the cost and with the consent of the chiefs, for the decision of disputes respecting *giras* or hereditary estates, between them and the *bhayads* or *girassias*. The president is chosen by Government from a list of persons proposed by the chiefs.

There are four chiefs of the first class in Katiwár, all paying tribute to the Guikawar and the British Government, and all but one have sanads conferring the right of adoption. The first is a Muhammadan, the Nawab of Junagarh, whose dynasty was founded by a soldier of fortune in 1735. The Junagarh Nawab, with the other chiefs, made an agreement with the Bombay Government, in 1808, to renounce and uproot piracy, and in 1846 to exempt ships from dues which put into his ports from stress of weather. His tribute amounts to 7,000*l.*, out of an estimated revenue of 200,000*l.*, and the population of his State numbers 380,900 souls. For these there are 39 schools provided, with 2,300 pupils. The Nawab of Junagarh is decorated with the Star of India (K.C.S.I.). The next is the Jam of Nauanagarh, a Jhareja Rájput, with a large *bhayad*. The family came from Kach, and founded Nauanagarh in 1542, driving out the Jetwa family. The Jam's territory lies along the gulf of Kach, and possesses the two finest harbours in India, Poshetra and Seraia. He pays 12,000*l.* of tribute, out of a revenue of 150,000*l.*, and his State contains a population of 290,847, for whom there are 26 schools, with 12,768 pupils. Bhaunagarh is the third first-class chiefship, and the best governed. The family settled in Katiwár in A.D. 1200, under Sejik, their head, from whom descend the chiefs of Bhaunagarh, Lath, and Palitana. The capital was founded by Bhau Sing in 1742, and succeeding Thakurs of Bhaunagarh took great pains to root out piracy and to improve trade. This led to an intimate connection between Bhaunagarh and the Bombay Government between 1740 and 1770, which has since continued. The Thakur, out of a revenue of 258,911*l.*, pays a tribute of 16,291*l.* The population of his State is 403,754, and he has established 80 schools, with 4,353 scholars. The Thakur of Bhaunagarh is aged 15, and is receiving his education at the Rajkumar College. The fourth chief of the first class is the Raj Sahib of Drangadra, whose State has a population of 87,940, for which there are 15 schools, with 550 scholars. The revenue is 30,000*l.*, out of which 8,794*l.* is taken as tribute. These chiefs maintain a small military force of 2,000 to 3,000 men each.

There are nine Katiwár chiefs of the second class, who have capital jurisdiction over their own subjects only: of Murvi, Wankanir, Palitana, Dharol, Limri, Rajkot, Gondal, Wadwan, and Jafirabad. All, except Jafirabad, pay tribute to the British Government and the Gaikawar, and seven to the Nawab of Junagarh also. Jafirabad is ruled by the Sidi Nawab of Jinjira. The population of these States vary from 20,000 to 130,000, and their aggregate population is 464,864. There are 95 schools in these States, with 8,076 scholars. Their total revenues are 266,700*l.* Four of the second-class chiefs—of Murvi, Limri, Rajkot, and Gondal—are minors, and the three first are being educated at the Rajkumar College. The Chief of Gondal is only eight, and is still under private tuition. Besides the above, there are ten minor tributary chiefs, the most important of which is the Rana of Porbandar, who has been temporarily reduced from the second class. In October, 1872, a new railway, from Wadwan to Viramgaon, was opened in Katiwár, which will tap a rich cotton-producing region. The Rajkumar College, which is most successful, was established for the education of the young chiefs of Katiwár. There are now 22 inmates, and the Thakurs of Bhaunagarh, Limri, and Rajkot form the first-class. Their conduct is excellent. They all have ponies, and a good gymnasium is provided, where they show considerable spirit, as well as at games in the playground.

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The remarkable region of Kach, with the gulf on the south, and the Rann dividing it from the mainland on the north, is an important native State, from its being a centre of active trade, and a nursery of excellent seamen. It is 170 miles long by 50, with an area of 6,500 square miles, and a population of 500,000 souls. The ruler of Kach is of the Jhareja family, which is said to have emigrated from Sind in the 15th century, led by Jam Lakha, son of Jhara, whence the name of the race. After a few generations there was a disputed succession, and a dispossessed claimant, named Khengar, aided by the Muslim King of Ahmadabad, who gave him the title of Rao, acquired possession of the whole country. His descendants have ever since been Raos of Kach. In October, 1809, there was a treaty between Kach and the British Government, by which the Kachis agreed to renounce all claim to interfere in the countries east of the Rann and gulf, and to suppress piracy. But the piracies continued, and the reigning Rao was guilty of atrocious cruelties: In 1816 a British force moved into Kach, and on June 14th of that year a treaty was signed, by which the Rao agreed to pay indemnities and to suppress piracy, while the English Government undertook to reduce all the petty chiefs of Kach to the Rao's authority. Fresh disorders broke out, and in 1819 the Rao was dethroned. A new treaty was then signed, on October 13th, 1819, providing for a Regency, consisting of the British Resident and some Jhareja chiefs, until the Rao's son, named Daisul, should come of age. The territory was guaranteed, as well as the estates of the chiefs, and it was provided that a British force should be stationed in Kach. In 1822 the district of Anjar was restored, on the annual payment of 8,800*l.*, besides 20,000*l.* for the expenses of the troops. Rao Daisul was placed in power in 1834; in 1836 he abolished the slave trade, and he died in 1860. The present Rao Pragmul of Kach has received a sunnud giving him the right of adoption, and he is decorated with the Star of India (G.C.S.I.). The revenue of his State is increasing, and he has introduced several useful measures. A revenue survey, by English officers, has been determined upon. The State has 32 schools, with 2,305 pupils; has vigorously suppressed infanticide, and the Rao recently co-operated very zealously with Sir Bartle Frere in measures for the suppression of the slave trade at Zanzibar, so far as his subjects were concerned in it.* He received his education privately at his capital of Bhuj, and is now 53 years of age.

10. The Native States in the south part of the Bombay Presidency represent the remains of the Mahratta Empire. Satara, where the elder branch of the founder of Mahratta power reigned, was annexed in 1848. The younger branch of the House of Sivaji, however, still retains sovereignty in the small State of Kohlapur; descendants of ministers and officers of the old Empire hold jaghírs in Satara and the Southern Mahratta country, and there is one other Mahratta State, that of Sawant-wari. Kohlapur is enclosed between Belgaum and Sawant-wari to the south, and Satara to the north. On the east it has the Krishna river, and on the west the hills of Sahyadri, and the Ratnagiri Collectorate. The territory thus enclosed has an area of 3,184 square miles, and a population of 802,691 souls, partly of Mahratti and partly of Kanarese race. The elder Satara branch recognised Kohlapur as a distinct principality in 1731, but the direct descendants of the founder Sivaji became extinct in 1760, when a member of the Bhonsla family was adopted as Raja of Kohlapur. In those days his power reached to the sea, and the piratical habits of his subjects were so troublesome that in 1765, and again in 1792, expeditions were prepared against him at Bombay. At last a treaty was signed, on November 25th, 1792, by which the Kohlapur Raja agreed to pay compensation for losses to merchants since 1785; and by an agreement in 1811 he further ceded his forts, consented to give up armed vessels, and to abstain from all hostilities, and in return his territorities were guaranteed. For the next ten years the reigning Raja was engaged in robbing his jaghírdars, or great landed proprietors, and driving them to rebellion. This led to a treaty dated March 10th, 1826, by which the Raja undertook to respect the rights of the jaghírdars, to reduce his army, attend to advice, and not to grant an asylum to rebels. From 1842 to 1862 the State was under British management, and when it was restored, the Raja received first-class jurisdiction, including the right of trying capital cases, the guarantee of being allowed to adopt, and was required to be guided by advice. On the melancholy death of the late Raja at Florence, in 1872, the administration of Kohlapur was entrusted to the Political Agent, the young Raja being only ten years of age. He has a tutor and also attends the State vernacular school. The revenue of the State is 132,446*l.*

* For an account of the trade and intercourse of the natives of Kach with the east coast of Africa *see* p. 114.

The State of Sawant-wari forms the most southern part of the Konkan, and is bounded on the south by the Portuguese territory of Goa. The area is 800 square miles, and the population 190,814. The Sawants were hereditary Deshmuks of Wari near Goa, and belong to the Bhonsla family. In 1707 Khem Sawant received from Sahojí, the successor of Sivaji, a deed confirming him in full sovereignty over this mountainous principality. In 1730 the English made a treaty with his nephew against the pirate Kanoji Angria, chief of Kolaba; but in 1765 his own piracies led to an expedition against Sawantwari, and to continuous complaints. At last a British force invaded the country, and a treaty was signed on February 19th, 1819, by which the Sawant-wari chief acknowledged the supremacy of the British Government and ceded Vingorla, receiving in return a promise of protection. On September 15th, 1838, another treaty was signed by which the chief ceded the right to levy land and sea customs, the Government paying him an amount equal to the average receipts for the three preceding years. The turbulent nobles of this State were constantly in rebellion, and the Government was obliged to assume management in 1839 and 1844. A Political Superintendent is now administering the affairs of the State, as the young chief, Raghunath Sawant Bhonsla, is only 11. He is to be educated at Kohlapur with the young Raja of that State. The revenue of Sawant-wari, is about 27,284*l.*, and there is a local corps of 463 men. There are 26 schools with 1,325 pupils.

Of the piratical States of Western India, so famous in the last century, Kohlapúr and Sawant-wari remain. But the most notorious of all, against which Lord Clive and Admiral Watson led an expedition, has passed away. Kanoji Angria, the servant of Sivaji, eventually made his peace and his little principality of Kolaba was guaranteed to him, but his last descendant died in 1840, and the territory was annexed. The State of the Abyssinian Sidi, however, the Admiral of the Muhammadan fleet, who held his jaghírs from the King of Bíjapur, still exists. For many successive years the Sidis stood sieges against the Mahratta army, in their stronghold of Jinjira; and on December 6th, 1733, the then Sidi signed an offensive and defensive treaty with the Bombay Government. From that time the Sidi, in his piracies, always spared British ships. The Hubshi* Sidi is now called Nawab of Jinjira, and rules a country between Bombay and Ratnagiri, with an area of 324 square miles, a population of 72,000 souls, and a revenue of 32,000*l.* The Nawab, who is aged 53, has not received a sanad authorizing adoption. He is also chief of Jafírabad in Katiwár.†

The Satara Jaghírdars, whose possessions were guaranteed by the Treaty of 1819 with Satara, are descendants of ministers and courtiers of the old Mahratta Empire. On the annexation of Satara they became feudatories of the British Government. The Pant Sachev of Bor was one of the eight hereditary ministers of the kingdom founded by Sivaji. His descendant holds a jaghír of 500 square miles, with a population of 111,689 and 49,277*l.* revenue. The Daflé is a Jat, and holds 700 square miles, containing 70,665 souls, and yielding a revenue of 7,985*l.* The Pant Pratinidhi has 350 square miles, yielding 12,416*l.*, with a population of 58,980; and the Nimbalkar Chief of Phaltan obtains 12,017*l.* from his 400 square miles and 59,536 subjects. The Rajah of Akalkot has a small territory of 20 miles south-east of Sholapur, bordering on the Nizam's dominions. He is a boy of 5 years of age, and the State will, therefore, be under direct management for several years. The area is 295,572 acres, and a revenue survey was completed in 1871-72; irrigation is effected by means of 1,731 wells. The population is 81,068; and is provided with Anglo-vernacular school, 15 vernacular, and 6 Persian, with 1,004 pupils.

There are eight Southern Mahratta Jaghirs, whose chiefs derive their origin from three large families called Putwurdhan, Bhawa, and Gurapuray. The Jaghírs contain an aggregate population of 610,034 souls. The Partwardhans, who are Brahmans, hold the jaghírs of Sangli, Jamkhandi, two of Miraj, and two of Kurandwar. Sangli is the largest and most important, with a population of 283,663, and a revenue of 64,300*l.* All of these, except Jamkhundar, behaved well in 1857, the year of the mutinies. They all pay tribute to the British Government. The Bhawa family got into serious trouble during the mutinies. Two branches held the two strongest fortresses in the Konkan, Nurgund, and Ramdrug. Nurgund was very gallantly defended against Tippoo in 1784 by Venkut Rao of this family, who was treacherously carried off a prisoner to Seringapatam, and not liberated until the fall of the Mysore tyrant. He was restored to Nurgund; but his descendant Bhaskar Rao was hanged in 1857

* Abyssinian.

† See also Sachin, p. 180.

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for the murder of Mr. Manson, the Political Agent, and Nurgund was confiscated. The Ramdrug branch remained; and its chief, Ram Rao, a benevolent and popular ruler, died in 1872, being succeeded by his son. The Gorapuray family holds Mudhol. Its founder rose to power in the time of the kings of Bijapúr, and opposed the encroachments of Sivaji; but the family eventually submitted to the Peishwa. The Mudhol chief is now a boy of 12, and is being educated at Kohlapur. The most southern of existing Mahratta States is that of Sandur, a valley surrounded by hills in the Madras Collectorate of Balari. The family of Ghorepuras is of most ancient Mahratta stock, identical with the Bhonslas of Satara. The founder was an officer in the army of the King of Bijapur, and his grandson seized upon the valley of Sandur, driving out a Beder Poligar, in about A.D. 1710. This valley has a central position in the Balari district, surrounded by a cordon of hills, with the isolated rock of Ramandrug, 1,200 feet above the plain and 3,150 above the sea, rising in its centre. After long struggles with Hyder Ali and his son, the ruler of Sandur surrendered his valley to General Monro in 1818, but was reinstated by a sanad dated July 7th, 1826, by which Sandur was conferred upon Shera Rau Ghorepura and his heirs for ever, with the management of the revenue, police, and justice, on condition of allegiance. He is improperly merely called a Jaghírdar in the sanad, but he is truly a Rajah. Sir Thomas Munro declared that "he was as much a Sovereign" "in his own valley as any Prince in India." Shva Rau was succeeded by his adopted son Vencat Rau, who received a similar sanad dated January 12th, 1841. In 1846 the Rajah of Sandur gave permission for a convalescent station for troops to be formed on the lofty hills of Ramandrng. Vencat Rau died in 1861, and his eldest son succeeded, who is the present Raja Siva Shun Mukho Rau, now aged 27. He received a sunnud guaranteeing him the right of adoption in 1862. He has introduced many reforms into his valley, especially with a view to giving security to the tenures of land, and the ryots are allowed to take firewood and timber for all agricultural purposes free of charge. The population of Sandur is now 14,000, and the revenue, in 1871, was 4,500*l.*

The most southerly State in the Bombay Presidency is that of Savanur, extending over an area of 66 square miles, in the Dharwar Collectorate. It has a population of 17,187 souls, and yields a revenue of 8,167*l.* The chief is a Muhammadan of Afghan descent, a boy of 12, now under special tuition at Dharwar.

As many as 19 States in the Bombay Presidency, with a population of 4,759,523, are now under direct English management, owing to the minority of their chiefs. Of these the most important are Kohlapur, Sawantwari, Bhaunagar, Murvi, Limri, Rajkot, and Gondal in Kattiawar, Edar and Akalkot. The others are Baria, Lunawara, and Sonth in the Rewa Kanta; the Pant Sachew—one of the Satara Jaghírdars; Mudhol—one of the Southern Mahratta Jaghírdars; Sachin, near Súrat; Peint, near Nasik; Jawar, in Tanna; Narukot, in the Panch Mahals; and the Nawab of Savanur, in Dharwar.

The territory of the Nizam of the Deccan is the same as the Subah of the Deccan of Moghul times, and forms now by far the largest and most important of the native States of India. This territory, traversed by the rivers Godavari and Krishna, in their courses from the western ghauts to the Bay of Bengal, occupies the central plateau of the peninsula. The area of the State is about 95,337 square miles, with a population exceeding 10,500,000. Asuf Jah, a son of one of Aurungzib's ablest officers, after a long life of political intrigue at Delhi, established his independent power as Subadar of the Deccan in 1724, with Haidarabad, on a tributary of the Krishna, as his capital, and founded the Asuf dynasty. His successors, in alliance with M. Dupleix, the French Governor of Pondicherry, employed a body of French troops under Bussy; but when the war broke out in 1756 the policy was changed. The first treaty with the English Government was signed on March 14th, 1759, when the Nizam Salabut Jung ceded the district of Masulipatam and agreed to dismiss the French. The Nizam Ali Khan, who succeeded in 1761, reigned until 1803. The second important treaty was signed on November 12th, 1766, by which the districts of Ellor, Guntur, and Rajahmandri were ceded to the English, and the Nizam, on payment of 90,000*l.* a year, agreed to furnish troops in war. Disputes as to arrears of payments followed, and in 1790 the league against Tippoo was formed, on the principle of an equal division of conquered territory. By the treaty of September 1st, 1798, the Nizam's subsidiary force was raised to six battalions, costing 241,710*l.* a year, and made permanent. Then followed the final war with Tippoo, and the partition treaty, signed on July 13th, 1799. By a subsidiary treaty, dated October 12th, 1800, the English Government guaranteed the integrity of the Nizam's

territory; but, to enable them to fulful this engagement, the subsidiary force was increased, and the Nizam ceded all the conquered country he had acquired from the Mysore Partition Treaty, in order to provide for the pay of the troops. This arrangement was followed by the signature of a commercial treaty in 1802, limiting the duty on imports and exports to 5 per cent., all transit and other dues being abolished. The Nizam Ali died in August, 1803; and was succeeded by his son, Sikandar Jah, who confirmed all existing treaties.

When the war against the Pindaris was organised in 1817, the success of which effected such incalculable good in Central India and Rajputana, the Nizam's troops did useful service, which resulted in a treaty concluded at Haidarabad between the Nizam and Sir Charles Metcalfe on the 12th of December, 1822. The Nizam was released from all demands of *chout* which had been due to the Peishwa, and to the claim for which the English Government had succeeded; and the Nizam guaranteed the rights of all landholders in territories that had been made over to him by exchange or otherwise. Several exchanges of districts were made. The Nizam's Government was oppressed with debt, the chief creditors being Messrs. Palmer & Co., bankers, who had been established in Haidarabad since 1811. Their claim, in 1823, amounted to 787,067*l.*; and the English Government made out a claim of 200,000*l.*, as the excess in the collections of districts ceded to the Nizam in 1822, over those ceded by him. Relief was obtained by the Nizam surrendering a *peshcush* of 70,000*l.* a year to which he was entitled from the Northern Circars, in exchange for 1,166,666*l.* down. The Nizam Sikandar Jah died in May, 1829, and was succeeded by his son Nasru-d-Daulah, who, in a treaty dated the same year, confirmed all previous treaties. The country was wretchedly governed, the assessments, in money in some parts of the country, but generally in kind, left scarcely anything for the cultivators, and the Government was in a chronic state of financial embarrassment. In 1847 the Nizam employed an army of 50,219 men, of whom 5,747 were Arabs, 100 Bilochis, 2,875 Rohillas and Sikhs, and 18,326 of the line, the rest being mercenaries from other parts. The Nizam and his Government were, in a great measure, in the hands of the Arab mercenaries.

The reform of the State dates from the year 1853, when Salar Jung became Minister, and the new treaty was negotiated by the Resident, Colonel Low. The basis of this treaty was that the Nizam should be relieved from his debts and from all future payments for the contingent, on condition that he ceded territory of the value of 360,000*l.* a year to the British Government. The auxiliary force was in future to consist of 5,000 infantry, 2,000 cavalry, and four batteries of artillery. But the Nizam objected to cede territory in perpetuity. He agreed to hand over to the exclusive management of the British Resident districts yielding 500,000*l.*; any surplus, after all charges were satisfied, being paid to the Nizam. The Berars, the Raichar Doab, and the Dharasco district were then assigned for this purpose. In May, 1857, Nasru-d-Daulah died, and was succeeded by the present Nizam, Afzulu-d-Daulah, who continued Salar Jung as Minister. In the Malwa campaign of 1857–58, the Nizam's contingent did very excellent service, and he himself remained steadily loyal. As a reward a treated was signed on December 31st, 1860, by which the territory of Shorapur, confiscated for the rebellion of the Raja, was added to the Nizam's territory, the Raichur Doab and Dharasco were restored to him, and a debt of 500,000*l.* was cancelled. He was also decorated with the Star of India (G.C.S.I.). It was intended to retain as much of the assigned districts as would leave a revenue of 320,000*l.*, required for the regular payment of the contingent. The Raichur Doab and Dharasco, yielding 210,000*l.*, were restored to the Nizam, while the administration of the Berars, the present Haidarabad Assigned Districts, was retained under British management.

Salar Jung has conducted the internal administration of the Nizam's territory, since 1853, with remarkable ability; and has been decorated with the Star of India (G.C.S.I.). The Nizam died on the 26th of February 1869, and was succeeded by his infant son, Mír Mahbúb Ali Khan. The administration is entrusted to Sir Salar Jung and Shums-ul Umra, K.C.S.I., as guardians of the young Nizam. The Nizam's army numbers about 30,000 men, of whom upwards of 6,000 are Arabs; and altogether there are about 10,000 foreign mercenaries in his territories. As the nobles and chiefs claim exclusive jurisdiction over their retainers, the police of Haidarabad are inefficient; and the village watchmen and Nizamut police in the rural districts are not much better. The land revenue is still collected in kind, in some parts of the country, the rate, for irrigated crops, being half to the Government and half to the cultivator. In the parts where it is paid in money, the rate is much the same, about 8 annas for the rupee on the value of the crop. The

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only feudatory of the Nizam is the Rajah of Gudwal, who is not interfered with so long as he pays 11,500*l.* a year as tribute.

12. The State of Mysore has now been under the direct management of English officers for many years, and the history of its administration is recorded in the annual reports. The old Rajah, who just remembered the siege of Seringapatam, died in 1868; and in April of the previous year it was resolved that his right of adoption must be recognised. So, on the 23rd of September, 1868, his successor, Chamrajendra Wadiyar, then in his seventh year, was duly installed. He is receiving a most careful education, under the able supervision of Colonel Malleson; and every effort is being made to impart a liberal and manly tone to his tastes, by instruction, by travel, and by encouraging him to vie in sports with companions of his own age. It is truly said, in the Mysore Administration Report, that "when the time comes for "his accession to power he will succeed to a flourishing exchequer, and to a system "of land revenue thoroughly settled. Seldom will a monarch have assumed the "reins of Government under fairer auspices."

In the Madras Presidency there were originally many feudatory Rajahs and Polygars. Those in the Northern Circars were at first treated as feudatories, paid tribute, and were expected to keep the hill tribes in order. But in 1802 a permanent settlement was introduced, and the proud chiefs became zemindars, retaining the management of the land revenue of their estates, but being themselves handed over to the judicial power, and no longer with a political status. In Vizagapatam there are 16 of these zemindars, all of ancient lineage. The most important is the chief of Vizianagram, whose ancestor is said to have led four Rajpút tribes into Telingana in A. D. 591. The family moved into Vizagapatam in 1652, and founded the fort of Vizianagram in 1713. The present chief holds extensive estates and pays 50,000*l.* as the rent due to Government. He was born in 1825, and has managed his property so admirably since 1852, when he succeeded to it, that the Governor-General conferred upon him the title of Maharaja by a sanad dated February, 1863. He has been decorated with the Star of India (K.C.S.I.), and is entitled to a salute of 13 guns. Only one Native State remains on the Carnatic side of the Madras Presidency, namely that of Puthu-kottei (Poodoocottah), lying between Madura and Trichinapalli, about 42 miles long and 43 broad, with an area of 1,380 square miles; half being jungle and rocky land, the rest cultivated, and with innumerable tanks, some over a mile long. In the heart of the Puthu-kottei territory is the capital, a fine city, with the palace in the centre, surrounded by jungle. The Rajah or Tondiman of Puthu-kottei is the acknowledged head of the Kullan, or thief caste, one of the thirty branches of the Kannia, or agricultural caste, in the southern districts. When all the southern Polygars were in arms against the British Government in the last century, the Tondiman remained faithful; and his descendant is the only southern chief who pays no tribute. The Tondiman's subjects, numbering about 62,000 souls, are chiefly of the Kullan caste.

Among the other Madras Zemindaris the most illustrious in ancient times was the chiefship of Ramnad, in the eastern part of Madura. The founder of the ancient Marava dynasty of Sethupatis, or guardians of the Isthmus and sacred temple of Ramesaram, was appointed by Rama himself. The Sethupatis of Ramnad were vassals of the Pandyan and Naik kings of Madura, but they were the chiefs of all the vassal polygars; and when the Sethupati was dethroned, the people continued to clamour and rebel until his grandson Sadeika Tevan was restored in 1605. Under the English the Sethupatis became mere Zemindars, with a permanent settlement, and lately, with an appeal to the Privy Council as to whether the Zemindar of Ramnad has the right of adoption. The Marava caste inhabit Ramnad, a fierce race in former days, but now devoted to agriculture. They also form the population of Shivaganga, the other great Zemindary in Madura. There are a considerable number of minor Zemindaries, namely, 52 in Ganjam and Viagapatam, four in the Godavari, six in the Kistna, five in the Nellor, five in the North Arcot districts, and one in Karnal; six in Trichinopoly, eleven in Madura, besides Ramnad and Shivaganga, fourteen Polygars in Coimbator, and twenty-two Zemindars in Tinnevelly, altogether 126.

On the western side of the Madras Presidency there are two Native States, which are specially interesting; for it was on this Malabar coast that the first direct trade with India commenced, in the days of Vasco da Gama and Albuquerque. Here still dwells that Zamorin of Calicut whose name so often occurs in the "Lendas" of Gaspar Correa; and here we meet with most of the places described in the earliest

records of European intercourse with India. The dominion of Cheruma Perumal, formed a thousand years ago, was broken up on his retirement, and all the present chiefs of Malabar assert that their ancestors received grants from this famous Viceroy. To the Zamorin's ancestor he gave his sword, and the sovereignty of as much land as a cock could be heard crowing from on a neighbouring temple, with the title of "Zamorin," or lord over the other Rajahs, leaving him to make good his title as best he could. The native name for Calicut is *Kozi-kughi-kota*, "the fort from whence the cock crew." There were other superior Rajas such as he of Cochin, and numerous Kaimuls, or lesser lords, while in the extreme south were and are the dominions of the Raja of Travancor. England commenced her trade with Zamorin's dominions in 1664, and in 1729 the Company acquired the famous pepper monopoly. In 1766 Malabar was conquered by Hyder Ali, and groaned under the cruel oppression of the Mysor tyrants until 1791, when the chiefs and people agreed to acknowledge the supremacy of the British Government, and to pay tribute and taxes. Soon afterwards the Zamorin and other great lords ceased to exercise independent jurisdiction, and for many years Travancor and Cochin have been the only two native States on the Malabar coast. The peculiar custom of the Nairs and higher castes of the Malayalam speaking people, which is one of political importance, is that of female succession, by which the children of a sovereign have no rights but from their mother, and his successor must either be a brother or the son of a sister.

Cochin, though the smaller of the two Malayalam States, takes precedence, as its Raja is of the highest caste. He is of pure Chettiar race, while the Zamorin and the Raja of Travancor are only Sudras. The Cochin State contains 1,131 square miles. It is bounded on the north by British Malabar, on the south by Travancor, on the west by the sea, and on the east by the central mountains. It is divided into hills covered with glorious forest; plains between the hills and the backwater which traverses the length of the State; and the strip between the backwater and the sea, covered with cocoa-nut trees. From 1776 to 1791 Cochin was under the yoke of Hyder Ali, and his son; and the first agreement of its Rajah with the English was in 1793, when he bound himself to pay 20,000*l.* a year as tribute, and received a guarantee of all his rights. Owing apparently to French intrigues, the conduct of the Cochin Dewan became suspicious, and a fresh treaty was exacted in 1809. The subsidy was raised to 27,603*l.*, but in 1818 it was reduced again to 20,000*l.*, and all military stores were surrendered. From this time uninterrupted harmony has prevailed between Cochin and the English Government. In 1862 the full right of adoption was conceded; that is to say, if there is no brother or son of a sister, the eldest female *Tumbaran* (member of the family) succeeds as Regent, until an heir is born; and if the female *Tumbarans* become extinct, ladies may be adopted to carry on the succession. Rava Virmah, the present *Muta Tumbaran*, or Raja of Cochin, succeeded on May 5th, 1853, and is now aged 46. He is decorated with the Star of India (K.C.S.I.). His reign has been marked by a series of reforms, and the general prosperity of his subjects is now on a level with that of the people in neighbouring British districts. The population is about 400,000, and the revenue 125,458*l.*; being 14,664*l.* in excess of the expenditure. There is a good high school at Ernacollum, which educates up to the University entrance examination, with 190 pupils; and 476 other scholars were receiving instruction at State schools. Roads and bridges are made and maintained, there is a system of forest conservancy, and cultivation is extending, the coffee plantations on the Neliampathy hills especially yielding excellent crops. There is no more prosperous native State in India than Cochin, unless, indeed, it be her neighbour Travancor.

Far south, between the mountains and the Indian Ocean, lies a rich, damp country, which was ruled by many chiefs, until, in the eighteenth century, they were gradually brought under the authority of the ancestor of the present Raja of Travancor. This Waji Baula Perumal had an army disciplined by a Flemish adventurer, and held sway from 1758 to 1799. He was a steady ally of the English during the war with Tippoo. In 1793 he signed the "Pepper Contract," by which he undertook to supply the Bombay Government with a large quantity of pepper for ten years, in exchange for arms and European goods. Two years afterwards, in 1795, he signed a treaty, agreeing to pay a subsidy sufficient to maintain a small contingent force. His successor, by a subsequent treaty in 1805, increased the subsidy and the force. Eventually the subsidy was fixed at 80,000*l.* a year. The present Raja, Rama Wurma, received a sanad, dated March 11th, 1862, assuring him that, in the event of heirs failing, the right of adoption would be recognised.

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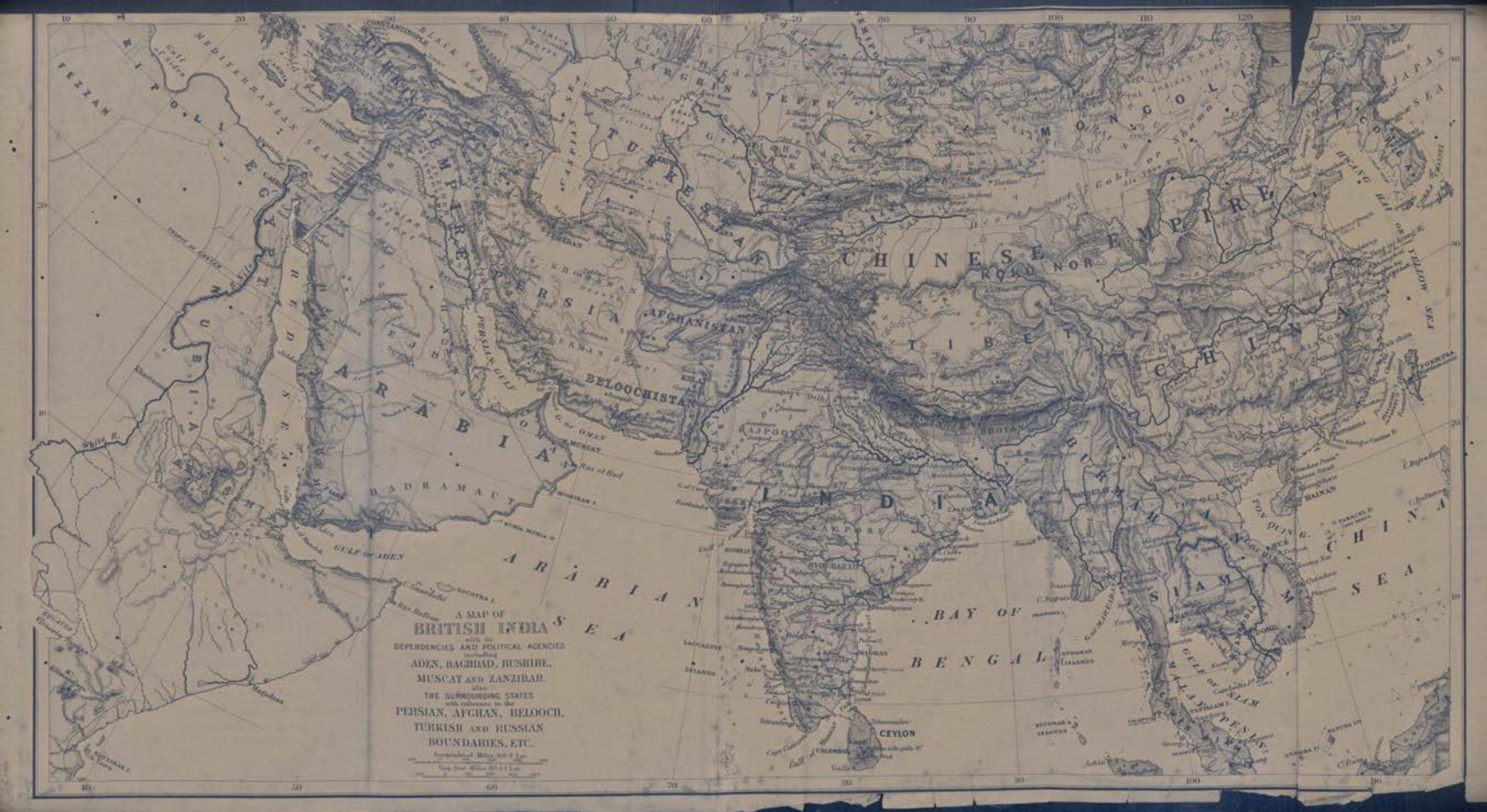
This was a very important matter, for in 1857 the ladies who continue the race actually had become extinct. These princesses resided at a place called Attingah, and are known as the Tumbrattis of Attingah. The last was the present Raja's sister, who died in 1857, and the family would have become extinct on the death of the Raja, his brother and nephew, for there was no female of the race to continue it. Two were, therefore, adopted with the sanction of the British Government, and they have been carefully educated. The present Raja, an amiable and accomplished prince, has been decorated with the Star of India (G.C.S.I.). His able Minister, Sir Madava Rao, K.C.S.I., who carried on the administration with remarkable skill and judgment for several years, retired in May, 1872, and was succeeded by the present Dewan Sashia Sastri. Travancor has an area of 6,653 square miles, with a population of about 1,300,000. The land revenue amounts to 165,992*l.*, and coffee cultivation continues to extend and flourish on the Travancor hills. The customs revenue is 130,421*l.*, there having been during 1872–73 a considerable increase in the export of cocoa and areca nut, coffee, and pepper. The latter article ceased to be a monopoly in 1861, a duty of 5 rs. per candy being substituted. The total income was 957,577*l.*, and the expenditure 549,365*l.*, leaving a balance to be carried to next year's account of 408,209*l.* Out of the expenditure a sum of 55,473*l.* was spent on the Devassum, or religion, and an extraordinary sum, only for that year, of 9,098*l.* on the *Pudmagarbhom* ceremony. The Trivandram College has a high reputation, and its students take good places at the Madras University. There are 16 other English teaching schools, with 808 scholars, 29 vernacular schools, and 138 village schools. Excellent roads have been constructed, especially one up the Peermede ghaut, and across the wild hill tract to the Madura district, which is nearly finished; and there was extraordinary activity in all branches of the Public Works Department in 1872–73. If all the Native States of India could bear comparison with Cochin and Travancor, the British districts would have to look to their laurels.

A general review of the treaty relations and positions of the Native States throughout British India, from Kashmir to Travancor, and from Munipur to Khairpur, and of their rulers, would be more satisfactory if it could be accompanied by a summing up of the statistics of the several groups, with reference to population, revenue, trade, and the condition of the people. But, although here and there the statistics of particular States, especially of those under direct management, are accessible, the figures, generally speaking, cannot be correctly given. With the above exceptions, the figures in the present section are mere approximations; though, by degrees, a higher standard of accuracy will surely be attained in future Reports. It is roughly calculated that the Native States cover an area of 610,000 square miles, and contain a population of over 55,000,000, paying a revenue of 14,500,000*l.* The amount of tribute paid to the paramount power is 741,465*l.* The military force of the whole of the Native States consists of 314,598 men and 3,488 serviceable pieces of artillery. The whole force, scattered over the Native States throughout India, is composed of 64,172 cavalry and 241,036 infantry.

Notices of the treaty relations with the outer circle of States that surround India, such as Yemen, Máskat, Persia, Kelat, Afghanistan, Eastern Turkistan, and Burma, would complete a review of her political relations; nor are these of minor importance. But it may be doubted whether this branch of the subject, so vast even when confined to a mere sketch, quite comes within the scope of the present Report. Even a general review of our relations with only the numerous Native States would, without good arrangement and classification, be altogether bewildering; and it is feared that the present attempt to make this important subject clear and intelligible will not be altogether successful.


A MAP OF
BRITISH INDIA
WITH ITS
DEPENDENCIES AND POLITICAL AGENCIES
including
ADEN, BAGHDAD, BUSHIRE,
MUSCAT AND ZANZIBAR.
also
THE SURROUNDING STATES
with reference to the
PERSIAN, AFGHAN, BELOOCH,
TURKISH AND RUSSIAN
BOUNDARIES, ETC.
TURKEY IN ASIA
PERSIA
AFGHANISTAN
BELOOCHISTAN
ARABIA
CHINESE EMPIRE
TIBET
CHINA
INDIA
BAY OF BENGAL
ARABIAN SEA
CEYLON
SIAM
MONGOLIA
KOKO NOR
EGYPT
SOMALI
HADRAMAUT
MUSCAT
GULF OF ADEN
PERSIAN GULF
GULF OF OMAN
BLACK SEA
MEDITERRANEAN SEA
RED SEA
CASPIAN SEA
ARAL SEA
YELLOW SEA
JAPAN SEA
HAINAN
COLOMBO
MADRAS
BOMBAY
CALCUTTA
KARACHI
SOCOTRA I.
MASIRAH I.
KURIA MURIA IS.
Cape Guardafui
Ras el Had
Aden
Mocha
Hodeida
Jeddah
Suez
Port Said
Alexandria
Constantinople
Tripoli
Fezzan
Baghdad
Bushire
Muscat
Zanzibar
Mauritius
Seychelles
Laccadive Islands
Andaman Islands
Nicobar Islands
Maldive Islands
Gulf of Siam
Malay Peninsula
Gulf of Martaban
Gulf of Cambay
Gulf of Kutch
Gulf of Manaar
Cape Comorin
Bay of Bengal
Arabian Sea
Persian Gulf
Gulf of Oman
Gulf of Aden
Red Sea
Black Sea
Caspian Sea
Aral Sea
Yellow Sea
Japan Sea
Hainan
Colombo
Madras
Bombay
Calcutta
Karachi
Socotra I.
Masirah I.
Kuria Muria Is

XIV.

MILITARY.*

THE established military force of British India numbers 193,005, including officers; of whom about 128,447 are Natives and 60,613† English (exclusive of officers). Of the Natives 47,814 belong to the Bengal army, 27,221 to the Madras Army, and 24,712 to that of Bombay. The British forces are chiefly stationed in the Punjab and along the valley of the Ganges. There are 38,011 English soldiers in the Bengal Presidency, of whom 12,690 are in the Punjab; 10,068 are in the Bombay Presidency; and 11,612 in that of Madras, including the Nizam's territory and the Central Provinces.

It may be taken as a general rule that where English troops are stationed there will be a larger force of Native troops, in proportion to the difference between the numbers of British and Native troops in the whole force; but of course there are many smaller and less important posts where only Native troops are stationed. Throughout all Bengal proper, north and east of Calcutta and Assam, except a few men at the hill station of Darjiling, there is not a single European soldier. The peace of the eastern frontier districts is entrusted to 4,898 Native troops, without cavalry or artillery, and to local police.

But up the valley of the Ganges the British infantry are stationed at regular intervals, 1,560 at Calcutta and Dum Dum, 909 at Hazáribagh, 735 at Dinapur, 388 at Benares, 782 at Allahabad, 830 at Cawnpur, 331 at Fathigarh, and 4,234 and 1,974 in Oudh and Rohilkhand. At Agra, Delhi, and Mirat (Meerut) there are 945, 425, and 579 respectively; while to the south of the Ganges valley 840 are stationed at Morar near Gwalior, 591 at Jabalpur and Sagar, and 395 at Jhansi. The rest of the British infantry are massed within the territory of the Punjab Government, 917 at Ambala, 669 at Jallandar, 1,079 at Lahor and Mian Mir, 910 at Ráwal Pindi, and 1,706 at Pesháwar. Of the cavalry, the 10th Hussars are at Mattra, the 21st Hussars are at Lucknow, the 15th at Meerut, the 11th at Ambala, the 4th Hussars and 5th Lancers at Ráwal Pindi and Siálkot, besides 20 regiments of Native cavalry spread over the presidency. The artillery are distributed in due proportions, four batteries in the Presidency District, six batteries in the Allahabad Division, five batteries in the Oudh Division, in the Ságar Division two batteries, in the Gwalior three, at Bareli one, in the Meerut Division seven, in the Sirhind four, in the Lahor seven, in the Ráwal Pindi and camp of exercise six, and in the Pesháwar three. The whole artillery force consists of 11 batteries of horse artillery, 26 field guns, and 11 garrison guns.

The Punjab lies at the foot of those mountains whence India has been invaded from time immemorial, and here it is necessary that a considerable force should ever be on the alert, and that outposts should be stationed at the points where the passes open upon the plains. There were 17,127 British and 18,758 Native troops in the Punjab, a total force of 35,885 men, and 97 field guns. Of these 5,839, with 19 guns, are at Pesháwar, and 3,567, with 12 guns, at Ráwal Pindi. A large Punjab frontier force is also placed under the orders of the Lieutenant Governor, numbering 12,416 officers and men; including 8,928 infantry, 2,852 cavalry, and 634 artillery. The infantry belonging to this force is composed entirely of Punjab, Sikh, or Gurkha regiments, except 111 men of the 41st Regiment. The artillery, also, is all composed of native batteries, one Pesháwar and two Punjab mountain batteries, two other Punjab batteries, and the Hazára mountain battery. The cost of the Punjab frontier force was £361,954. There were no raids from Hazára, but on February 15th, 1873, 200 men of the Hasanzai tribe attacked a village, and got off, only four being wounded. Twice Povindah merchants were attacked within our frontier, and the robbers escaped. But, on September 29th, 1873, when a party of Waziris carried off 74 head of cattle, they were recovered and one robber was captured. In the Derajat there were only two raids, five killed and eighteen wounded and but four kidnappings in 1872-73.

The 9,545 British and 21,021 Native troops which form the effective force in

* The details respecting the effective strength of the British army in this section have been taken from the Quarter Master General's returns for March, 1873.

† The Adjutant General's return makes it 61,502.

the Bombay Presidency are stationed in Central India, along the West Coast, and Sind. In Central India there are 1,867 British infantry soldiers at Nasírabad, Mau, Indor, and Nimach, and 792 at Dísa. The principal Bombay military division is Poona, in which there are 2,169 British infantry, while at Bombay there are 268. In the Bombay Presidency there are two batteries of Royal Horse Artillery, ten field, and six garrison batteries. All the 9-feet bronze guns have been replaced by wrought-iron guns, and there are now six batteries with new wrought-iron guns. The only English cavalry regiment in the Bombay Presidency is the 3rd Hussars, but the three regiments of Bombay Native cavalry and the Poona Horse number 3,514 men. In Sind there are 945 British and 2,029 Native infantry, and the three regiments of Sind Horse, with their head quarters at Jacobabad. The Aden force is composed of 633 British and 791 Native infantry, 128 gunners, and the Aden troop of horse, composed of 100 men. Among the European troops in the Bombay Presidency, 23 officers, 23 non-commissioned officers, and 621 men have passed through a full course of gymnastics. There were 231 deaths among the European troops, and 249 were invalided. The average age of the men in the Bombay Native army is 30 years and five months; the average height 5 feet 6 inches, and average weight 8 stone 12 lbs.

The army under the Commander-in-Chief in the Madras Presidency numbers 38,833 men, including 25,013 Native and 8,172 British infantry, 931 Native and 901 British cavalry, 11 fieldbatteries and eight batteries of garrison artillery, 622 horses were purchased in 1872–73. This force has to supply troops for the Central Provinces, the Nizam's Territory, Mysor, and Burma, as well as for the Madras Presidency. The stations for English infantry are Kampti (Nágpur), in the Central Provinces, where there are 833, Sikrandabad 1,684, Belari 924, Bangalor 1,011, Madras 646, Trichinapalli 169, and the coast of Malabar 874. In British Burma there are 2,232 British soldiers but no cavalry. There are three corps not under the orders of the Madras Commander-in-Chief, the Nair Brigade in Tranvancor, which is a small force of Native infantry, the regiments of Mysor Sillahdar Horse, and the Haidarabad Contingent. The Mysor Sillahdar Horse was raised from the ruins of Tippu's cavalry, after 1799. They have not been on field service since 1824, except for a short time in 1857, when three regiments were in the ceded districts. Low pay, bad horses and arms, reduced the number and impaired the efficiency of the force until 1872, when reforms were instituted, and the men are now carefully drilled. There are now 47 Native officers and 2,098 men armed with lance and pistol. The pay of the men is *Rs.* 26 a month. The horses are bought from Persian and Kandehar dealers, and number 1,138 horses and 851 mares; and at Kunigal there is a breeding farm with 27 stallions. The Mysor infantry force, called "Bar," is also a relic of Tippu. It consists of 256 officers and men in three regiments, one armed with percussion, and the other two with old flint muskets. Their duties are confined to jail and treasury guard.

The geographical distribution of British soldiers throughout India shows in round numbers 13,000 men along the valley of the Ganges from Calcutta to Hurdwar, 16,000 between Amballa and Pesháwar, 10,000 in Central India, and 1,200 near the mouth of the Indus. Along the west coast, from Dísa to Belgaum, there are 6,000, besides 950 in Malabar. On the eastern side of the Peninsula, including Mysor and the Ceded Districts, the number is about 7,000. There are no British troops south of Trichinapalli, but detachments of Native infantry are stationed at Paliamkota, Quilon, Trivandram, and Trichur. The railway system is now completed, and lines connect all the stations where British forces are stationed, excepting those in Sind.

During 1872, the number of deaths among the British troops was 1,425, or about 24 per 1,000, the ratio of sick per 1,000 being 56. The hill sanitaria, where there were, on an average, 1,575 convalescents at a time during the year, are so placed in the mountains overhanging the chief military stations, throughout India, as to supply health resorts for the different divisions. Darjiling sanitarium is provided for the troops in Bengal; Naini Tal for Oudh and Rohilkhand; Landaur, Ránikhet, Chakrata, and Kasauli for the North-West Provinces; Dalhousie and Marri for the Punjab. In Central India are Mount Abu and Puchmuri. For the Bombay Presidency there is the hill sanitarium of Púrandhar, and the seaside convalescent stations of Kolába and Ghizri Bande. Rámandrug furnishes shelter from the burning plain of Ballari, and Jakatala on the Nilgiri hills is the sanitarium for the rest of the Madras Presidency. In the Madras Native army there were 241 deaths in 1872-73, or a percentage to the strength of 0·82.

The great mass of the British troops, however, have not been stationed in the hills, though such a disposition of them has often been suggested, one of the great practical difficulties being the want of carriage to get them down on the occasion of an emergency. They are posted at the points of greatest strategic importance throughout the country; and the construction of healthy permanent barracks thus becomes a question of paramount importance.

In former days the accommodation for English troops in India consisted of low narrow buildings but slightly raised from the ground, and unprotected by verandahs. The men messed in their sleeping rooms, with tables between the rows of beds. The first improvement consisted in the erection of some upper-storied buildings, both floors being occupied as dormitories, and afterwards special quarters were supplied for married men. In Fort William a lofty barrack of this kind was erected, and another, called the "Ellenborough Barrack," in the fort at Allahabad. During Lord Dalhousie's time much was done to provide British soldiers with more healthy accommodation. Very lofty one-storied barracks, with rooms 25 feet nigh, and separate messing accommodation, were built in the Punjab at Lahor, Silkot, Ráwal Pindi, Nauwshahra, and Pesháwar. But the accommodation was incomplete even for the existing force of 45,000 men, before the mutinies. In 1857, additional Europeon troops were thrown into the country, to the amount of 25,000 men; and there is a permanent increase, since the mutinies, of 16,000 men.

In 1863 the Government of India resolved to adopt a regular plan for completing permanent barracks for the whole British force, at an estimated cost of 10,000,000*l.*, the expenditure of which was to be extended over a term of years. Colonel Crommelin was appointed as Inspector General of Military Works, to assist in dealing with the various questions connected with construction of barracks, and he prepared a series of recommendations and memoranda as to the designs of the buildings, the size of the rooms, the space per man, and the number of stories. Specimens were prepared for guidance, suitable to different parts of the country; the Army Sanitary Commission approved the designs; and, from 1864, the work has been proceeded with as rapidly as the estimates could be submitted and sanctioned.

The main feature of the new barracks is that they have an upper story, which is occupied as a dormitory, while the lower story is set apart for mess rooms, libraries, orderly and store rooms. The height of the rooms in the upper storey is 16 feet, and in the lower 20 feet, and the space per man is 90 superficial feet. The height serves as protection against the effects of radiation, and as a means of efficient ventilation, and is also necessary in the construction of the verandahs; for the provision of a row of clerestory windows above the verandahs is found to be very important. The original models have been generally adopted, but at Pesháwar and in Burma different descriptions of barracks have been built, and the plans have been modified in other places, according to the special requirements of the localities. In 1870, it was resolved that the order of confining the dormitories to the upper stories need not be acted upon in dry climates, but only in damp situations, and where there is much rain. The old barracks have been utilised in the Punjab, and also those which were built immediately after the mutinies at Oudh; and other large barracks existing before the mutinies have been altered and adapted to present requirements.

It has been said that the upper stories are excessively hot, but there is in reality no difference between the two stories when the roofs are properly constructed. A number of thermometrical observations have been taken in all descriptions of barracks throughout India, and it is found that the temperature does not differ in lower or upper storied buildings. At night, indeed, when the dormitories are wanted, the upper stories are cooler.

In the hill stations a different, and much less expensive style of buildings has been adopted, with an allowance of 71 instead of 90 superficial feet per man. The barracks at Dalhousie, built in 1872, are single-story huts of stone with slate roofs.

The permanent barracks, though the original outlay for their construction is great, will largely reduce the heavy expenditure on repairs; while the estimated increase of cost is placed at one-seventh. Unfortunately there have been two serious failures in the new barracks at Ságar and Nasirabad, owing to the malconstruction of masonry, which will entail considerable additional expense.

From 1862 to 1871 the expenditure on new buildings in the plains has been 2,592,205*l.*, and on improving the old barracks, 1,920,737*l.* On the hills the sum of

XIV. MILITARY.

371,500*l.* has been expended during the same period, on new and old buildings, to which, for all barracks, must be added a sum of 371,856*l.* for 1871–72. The total expenditure on all military works whatsoever, including barracks, fortified posts, roads, drainage, water supply in cantonments, and roads to hill sanitaria, from 1862 to 1872, has been 10,800,000*l.*, or an average of about a million a year. But permanent accommodation for about 5,000 British troops remains to be completed. During the last ten years, including the old barracks, the new accommodation supplied in the Bengal Presidency provides for 41,956 married and unmarried men. The original estimates have been unavoidably exceeded, owing to the great rise of rates of all kinds in the last ten years. The cost per man, including hospitals and buildings of every kind connected with the barracks, has been from 189*l.* to 286*l.* The cost of Chelsea barracks per man was 168*l.* A further sum of about 1,250,000*l.* is required to complete the permanent barrack accommodation for all the British troops in India. All troops arriving in or departing from India now pass through Bombay.

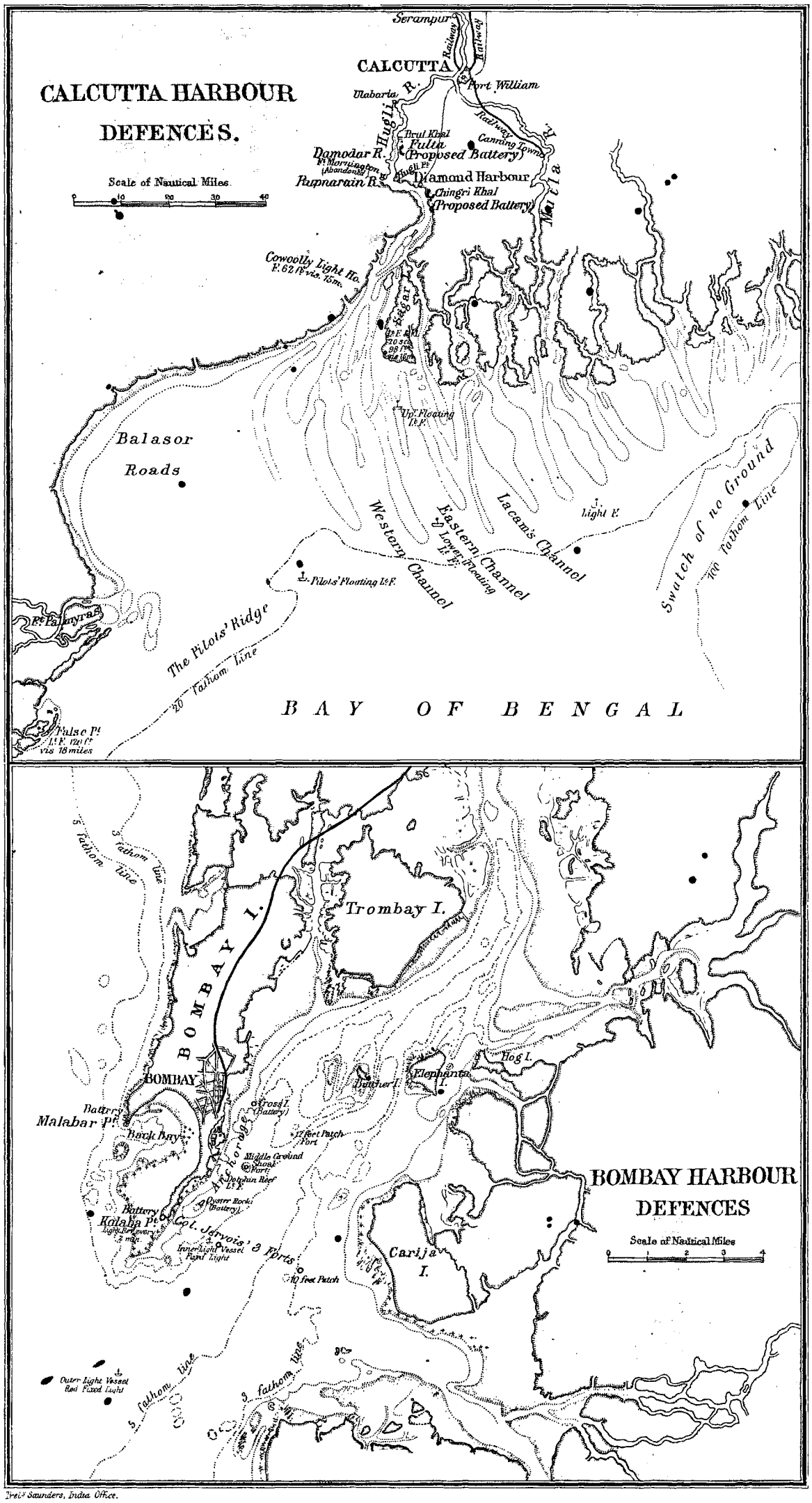
The native troops are generally expected to hut themselves in their own lines (an allowance, however, being made), but shelter has been furnished for them at Silang, Alipur, and several other stations, and in the hills for the Gurkha regiments.

During the year under review the establishments connected with the British and Native Army Schools have been improved and extended at some additional expense; while the pay of the British soldier has been revised and improved at an estimated cost of £60,000 per annum. A scheme proposed by the Government of India for facilitating the retirement of a certain number of field officers of the Staff Corps, by offering them the present value of their prospective claim to colonel's allowances, has been sanctioned. A certain financial saving is anticipated as the result of this measure, with the further advantage of transferring to the retired list many officers for whom, under the new system, it is difficult to find employment, on account of their rank, and of bringing the Staff Corps at an earlier date to its normal state as regards the proportion of its several grades, disturbed by the influx of a very large number of officers of the old army, under the rule for its formation in 1861 and 1866.

The defence of the wealthy seaports of British India against the attacks of any possible enemy is a question which, it is generally felt, should not be postponed until war actually breaks out or is imminent. Yet it is not altogether to be regretted that such defences have not been completed, and that where works have been commenced they are not so far advanced as to make an alteration in the plans very costly; for the science of attack and defence has been developed very rapidly of late years. The harbour defences of Bombay, as they were originally designed some eight years ago, consisted of six distinct works. The most costly and important is the fort on the Middle Ground Shoal, in the midst of the anchorage, and 1,800 yards from the shore. There were to have been twelve 300-pounders on it, in iron-fronted casements, and two 600-pounders in a turret. The foundations of this work have been completed to a height of a few feet above high water. Another fort was to have been built on the Oyster Rock, a patch dry at high water near the south end of the anchorage, 1,000 yards from the shore, and 3,000 south-west of the middle ground. The foundations of this work have been completed and a temporary battery of eight 10 and 19-inch guns has been placed upon them. The third work is a battery on Cross Island, towards the north end of the anchorage, 1,000 yards from the shore, and 4,000 from the Middle Ground, to be armed with seven 300-pounders. The top of the island has been cut down, and a battery of six guns has been placed on the platform thus levelled. A tower on a shoal called the "twelve-foot patch," 4,000 yards north-east of the Middle Ground, is to have two 600-pounders, and the foundation of this work has been formed. There is an earthen battery, with five 7-inch guns "en barbette," at Malabar Point, on the other side of Bombay Island, where it is proposed to erect a tower, with two 300-pounders in a turret, for the defence of Back Bay; and at Kolába Point there is a battery, armed with four 68-pounders "en barbette" and four 13-inch land service-mortars.

Two iron-clad monitors, the "Abyssinia" and the "Magdala," specially designed to aid in the defence of Bombay Harbour, arrived there early in 1871; their armaments consist of four 10-inch guns in two turrets.

Colonel Jervois reported upon this scheme for the defence of Bombay Harbour in April 1872. He pointed out that the numerous duties imposed upon a sea-going fleet render a dependence upon it for the defence of harbours unreliable; and that ports and coaling stations must, therefore, be rendered secure, independently of the action of a fleet. Monitors or floating batteries, although they are most valuable



Trelawney Saunders, India Office.

auxiliaries in conjunction with fixed defences, must not be exclusively relied upon. They afford an unsteady gun carriage, are liable to be penetrated by the guns of the present day, and may be ordered away from a particular post for general service. One important function of floating batteries would be to guard torpedoes at night, and prevent an enemy's boats from tampering with the mines, but this service would be as well performed by gunboats; and 18 suitable gunboats could be provided for the same cost as one monitor.

With regard to the scheme for the land defences of Bombay, Colonel Jervois has pointed out that an enemy might enter the harbour, passing 6,000 yards from the Oyster Rock, and take up a position 4,000 yards from the Middle Ground, and 5,200 from the Oyster Rock and the "twelve-foot patch," and thence shell the town or exact a few millions. An enemy should be prevented from entering the harbour at all. With this object Colonel Jervois recommends that forts should be built at the entrance of the harbour, similar to those at Spithead or Plymouth Sound, the depth being less than that on the side of the Plymouth Sound Fort, with a rocky bottom. He would build two such forts, circular, and each with 18 25-ton guns; one in 33 feet of water, 3,900 yards from Kolába Point, and the other on what is called the "10-foot patch," 4,000 yards west of the Coringa. They will be 5,400 yards from each other, and a fort on Kolába Point completes the line of defences. An enemy would be detained under their guns by electric torpedoes placed in the channel, and exploded by observation from the forts; while the two monitors and the three gunboats of the "Blazer" class, carrying 25-ton guns, would complete the scheme. The cost of such a system of defences, including the gunboats, is estimated at 932,000*l.*

The approach to the rich city of Calcutta by the River Hugli still remains undefended, but the question has been receiving very careful consideration. It has been proposed to erect a fort at Chingri-Khal, 40 miles above the entrance of the Hugli at Ságar, where the passage narrows to a channel half a mile wide, close to the left bank, and another 15 miles higher up at Falta. A torpedo committee, with Colonel Hyde as president, has been making experiments with gun cotton, and it recommended that five distinct systems of torpedoes should be placed at different points of the river, with gunboats to aid in the defence.

Colonel Jervois concurs in the proposal to construct batteries for powerful rifled guns at Chingri-Khal and Falta, and in the scheme for employing submarine mines to detain an enemy under the fire of the guns from these works; and he also thinks it very desirable that gunboats, adapted for the defence of the Hugli, should be provided. Fort William will be looked upon as a secure arsenal or place of refuge in case of mutiny or a rising of the natives; the armament being three pieces on Moncrieff carriages to sweep the *maidan*, and two or three converted 64-pounders in each lower flank. The cost of the proposed works for the defence of the Hugli is estimated at 160,000*l.* For the defence of Rangún Colonel Jervois recommends the construction of a battery at Chokey Point, 14 miles up the river, where it takes a bend, so that the fort would be able to rake a vessel approaching from seaward, and another battery might be erected for the defence of the approach to Mulmein.

At Aden the defences have been chiefly designed to guard against attacks from the land side, and the works on the isthmus leave little to desire.

On the land side the borders of India are safe from attack so long as a strong British force is massed in the Punjab and the passes leading from Afghanistan are watched by the field force under the orders of the Lieutenant-Governor. Still it is considered politic that a strong British garrison should be stationed at Pesháwar, numbering not less than 800 infantry. Works will at once be proceeded with, consisting of new barracks on a fortified position, with improved water supply, and every other appliance for preserving the health of the troops in a climate which has hitherto been found most prejudicial to Europeans.

At the time of the transfer of the Government of India to the Crown, funds existed in the several Presidencies in India to which military and medical officers and chaplains in the service of the East India Company contributed. The object of some of these institutions was to provide pensions for the widows and children of

subscribers, at their death, and of others to provide annuities for officers on their retirement from the service.

Soon after the transfer of the Government of India to the Crown, the subscribers were acquainted that if they were willing to transfer the assets, liabilities, and management of the institutions unconditionally to Government, the Secretary of State for India in Council would guarantee to the subscribers and their families the benefits to which they were entitled under the regulations of the several institutions.

The following funds have been accordingly transferred to Her Majesty's Government, in accordance with the vote of the subscribers, under the Act 29 Vict. c. 18, which was passed in 1866 to legalise transfers, and the business is carried on in the Military Funds Department of the India Office. The funds referred to are:—

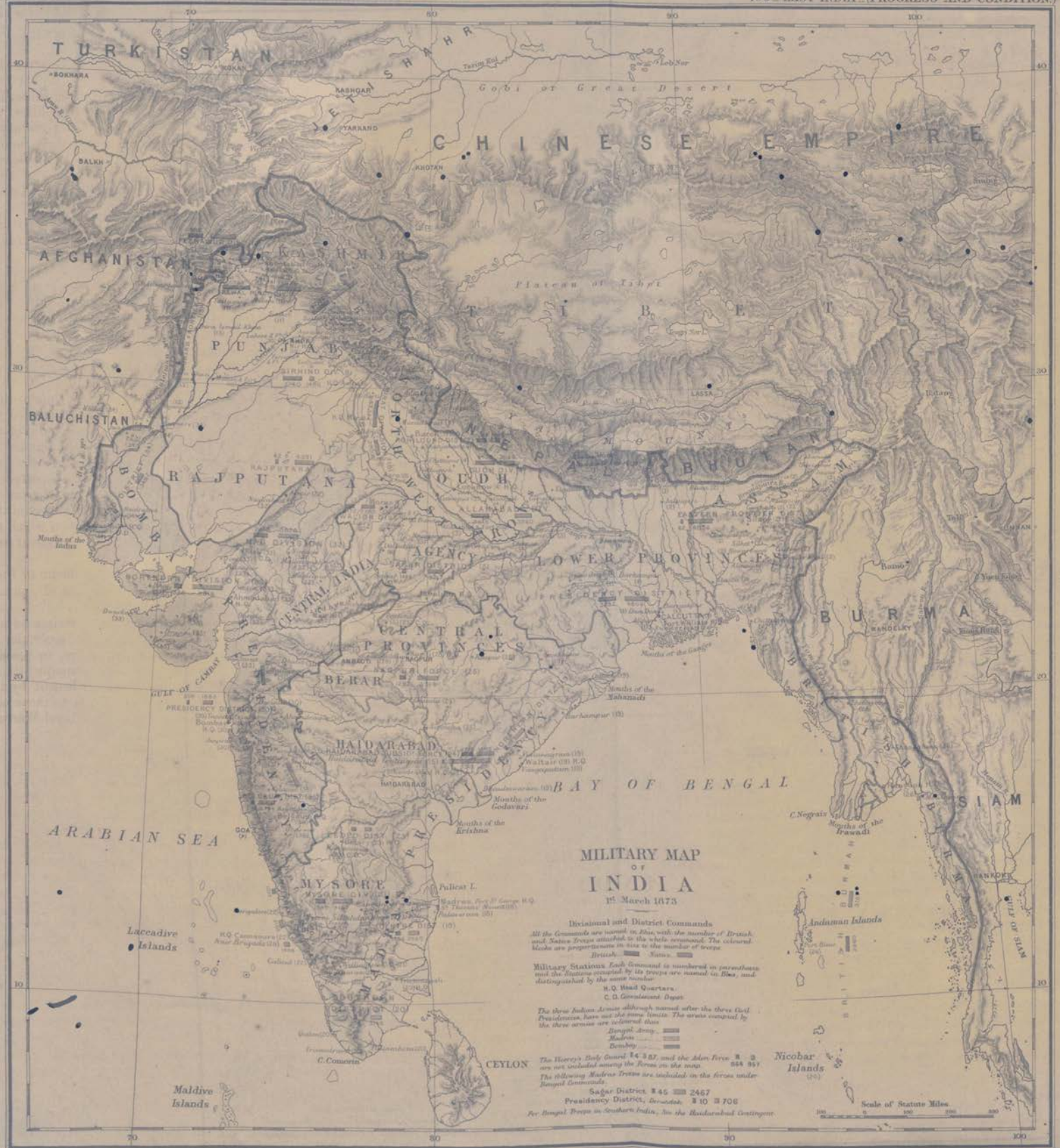
Bengal Military Fund.
„ Military Orphan Society.
„ Medical Retiring Fund.
Madras Military Fund.
„ Medical Fund.
Bombay Military Fund.
„ Medical Retiring Fund.
Indian Navy Fund.

The valuations of, and reports on, several of these funds have, from time to time, been made by Mr. Samuel Brown, the well-known actuary, and these have led the Secretary of State in Council to increase the benefits granted under the rules of the Bengal Military and Orphan, and Bengal, Madras, and Bombay Medical Funds. In the case of the Madras Medical Fund the increase was very considerable.

In April 1871 Major-General Hannyngton and Mr. Samuel Brown reported on General Norman's proposal for the establishment of a fund for the grant of pensions to the widows and children of military and medical officers and chaplains admitted into the service of the Government of India subsequently to the date on which the several Military and Medical Funds which have been transferred to Government were closed to new subscribers.

General Hannyngton's draft rules were approved, and the Government of India was authorised to create the fund, which came into operation on the 1st of January 1873.

The fund itself is founded on insurance principles, and the subscriptions and donations are therefore liable to alteration, the intention being to ascertain by periodical valuations that the payments are sufficient, and no more, to provide the pensions granted under the regulations. No burden will consequently be thrown on the revenues of India, nor, on the other hand, will they benefit by the institution of the fund, as the pensions will be granted in addition to those now allowed to Indian officers' families out of Indian revenues, under the Royal Warrant of 1855.


TURKISTAN
BOKHARA
KOKAN
KASHGAR
YARKAND
KHOTAN
Lob Nor
Gobi or Great Desert
CHINESE EMPIRE
BALKH
AFGHANISTAN
KASHMIR
Plateau of Tibet
TIBET
PUNJAB
BALUCHISTAN
NEPAUL
BHOOTAN
RAJPUTANA
OUDH
ASSAM
BOMBAY PRESIDENCY
NORTH WESTERN PROVINCES
CENTRAL INDIA AGENCY
LOWER PROVINCES
BURMA
CENTRAL PROVINCES
BERAR
HAIDARABAD
BAY OF BENGAL
ARABIAN SEA
MADRAS PRESIDENCY
MYSORE
SIAM
Laccadive Islands
Andaman Islands
Nicobar Islands
CEYLON
Maldive Islands
C. Comorin
Mouths of the Indus
Mouths of the Mahanadi
Mouths of the Godavari
Mouths of the Krishna
Mouths of the Irawadi
C. Negrais
Pulicat L.
GULF OF CAMBAY
GULF OF SIAM
MILITARY MAP
OF
INDIA
1st March 1873
Divisional and District Commands
All the Commands are named in Blue, with the number of British and Native Troops attached to the whole command. The coloured blocks are proportionate in size to the number of troops.
British
Native
Military Stations. Each Command is numbered in parentheses and the Stations occupied by its troops are named in Blue, and distinguished by the same number.
H.Q. Head Quarters.
C.D. Convalescent Depot.
The three Indian Armies although named after the three Civil Presidencies, have not the same limits. The areas occupied by the three armies are coloured thus
Bengal Army
Madras
Bombay
The Viceroy's Body Guard 144 187, and the Aden force 1 3 644 851 are not included among the Forces on the map.
The following Madras Troops are included in the forces under Bengal Commands
Sagar District 1 45 2467
Presidency District, Secunder. 1 10 706
For Bengal Troops in Southern India, see the Haidarabad Contingent.
Scale of Statute Miles.

XV.

SURVEYS AND STATISTICS.

SURVEYS are the basis of all accurate statistics; and their importance was recognised in British India from the year that Englishmen assumed the sovereignty of Bengal. But their progress, though steady, has been slow; and only now is there a tolerably near prospect of a completion of the triangulation and mapping of India, for the first time. The surveys have been at work for more than a century, and they have progressed in efficiency and precision as the progress of science has developed better methods and more accurate instruments.

At first the geographical work was confined to route surveys. In 1763 Major Rennell, the father of Indian geography, commenced his labours in Bengal, which were continued over a period of 19 years, until 1782. They covered a territory 900 miles long by about 300 broad, from the eastern confines of Bengal to Agra, and from the foot of the Himalayas to Calpi. The distances were chained, and observations, as checks, were taken for latitude and longitude at certain intervals. His maps of the rivers Ganges and Brahmaputra, with reference to the changes which have since taken place in their courses, and to the causes which influence these changes, are still valuable. Other officers followed in the footsteps of Rennell, surveyors accompanied every army in the field, and from their work general maps were compiled, which gradually superseded the first modern map of India by the great French geographer, D'Anville, published in 1755.

But it was not until the end of the last century that a trigonometrical survey was generally allowed to be the only accurate basis for mapping a country. General Roy began the trigonemetrical survey of Great Britain, by measuring his famous base on Hounslow Heath, in 1784; and British India was very little behind-hand. Her forwardness was due to the zeal of an individual officer. In 1800 Major Lambton proposed a mathematical and geographical survey of the peninsula, and the measurement of an arc of the meridian; and in 1802 he obtained the necessary instruments, and commenced the great work by measuring a base line near Madras. Trigonometrical surveying is divided into three distinct branches. First, the selection of sites for base lines to form the ends of ranges of triangles, their setting out, and their measurement with the utmost attainable accuracy. The base line becomes the side of a triangle, the length of which is thus known, and by trigonometry the distance of other points visible from its extremeties can be ascertained through angular observations with suitable instruments. Second, the construction of the range of triangles, which is done by ascertaining the position of selected points of the earth's surface by angles taken at first from the ends of a measured base line, and then carried on from point to point in succession, so as to form a network or series of positions, fixed by this triangulation along a belt of country. The accuracy of the work is checked by the base lines which terminate it. The primary triangulation is completed by a sufficient number of such belts across the area of the region to be surveyed, both in the direction of latitude and longitude. Third, as a further check to the triangulation, astronomical observations for latitude and longitude are taken at selected points. The first fixed position, or point of departure of the Trigonometrical Survey of India, when it was commenced in 1802, was the Madras Observatory. A series of triangles was then carried across the peninsula, a second base line being measured at Bangalore. Major Lambton then commenced the measurement of an arc of the meridian, known as the "Great Arc Series," southward from Bangalore to Cape Comorin, and northward in the direction of the Himalayas. Major Lambton himself, ever hopeful and buoyant, calculated upon personally completing it as far as Agra. In 1815 he crossed the Tungabudra into the territory of the Nizam. In 1818 he became a Fellow of the Royal Society; and finally his position was recognized by the Government, and the survey was ordered by Lord Hastings to be denominated the "Great Trigonometrical Survey of India." In 1818 Captain Everest was appointed Lambton's chief assistant. But the old surveyor was gradually wasting away from anxiety and hard work. In June 1819 was the last occasion that Colonel Lambton

ever took part in the work of triangulation. "Men cannot last for ever," wrote his assistant, Everest. He died at his post, at Hinganghát, in January 1823.

George Everest was appointed to succeed his master, Colonel Lambton. He came to England in 1825, in order to procure the best instruments of that day, and returned to India in 1830, with a set of the compensation bars invented by Colonel Colby. His first operation was the measurement of a base line near Calcutta, which was completed in January 1832. He then had to extend Lambton's "Great Arc Series" across the plain of the Ganges to the foot of the Himalayas, encountering and overcoming difficulties which could only have been surmounted by a combination of qualities which are rarely found united in one man. First, a series of 35 stations had to be selected, with masts 70 feet high, on which to display blue lights; and then permanent towers, 50 feet high, were erected, with the instrument on the summit, completely isolated from the stage on which the observer stood. These preliminaries required the exercise of much administrative skill and judgment, but at length they were completed, and the work of measuring the most northern base of the "Great Arc Series" was commenced in the end of 1834, in the beautiful valley of the Debra Dúr. To show the marvellous accuracy of these operations, it may be stated that the difference between the length of the Debra Dúr base as measured, and as computed by triangulation from the Sironj base, in the Deccan, was seven inches. Lambton's design was to cover India with a network of triangles; but Everest substituted what is known as the "gridiron system," by which a number of meridional series at certain intervals, connect and tie together the longitudinal series from sea to sea. This will be clearly seen on the map. When Colonel Everest finally retired from his labours in 1843, he had completed one of the most stupendous works in the whole history of science. No scientific man ever had a grander monument to his memory than the Great Meridional Arc of India. The whole plan of the survey, as it now exists, is the conception of his brain. He introduced the compensation bars which have measured every base in India down to the present day. He invented the plan of observing by heliotrope flashes, and the system of "ray tracing," and designed the plan for the observing towers. Sir George Everest died in 1866.

Colonel Waugh, who had served under Sir George Everest since 1832, succeeded him in 1843. His first work was to complete his predecessor's project for the triangulation of the region between the Great Arc Series and Calcutta, comprising the North-West Provinces and Bengal. It included the measurement of the North-Eastern Himalayan Series, in the execution of which it was necessary to work in the fever-haunted region of the Terai. This series was commenced in 1845, and completed in 1850; and was the longest series between measured bases in the world, being 1,690 miles from the Debra Dún base to that of Sonakhoda in Purneah. Of the five officers who conducted it, two fell victims to the climate, two retired, and in one season alone 40 of the men died of jungle fever. The heights of the loftiest of the Himalayan peaks were fixed from stations of this series, by measurements with the great theodolite, and the highest of all—No. 15—29,002 feet above the sea, was well named by Colonel Waugh, after his old chief, Mount Everest. The acquisition of Sind and the Punjab now offered a vast field for future operations, and Colonel Waugh conceived a project for forming a gridiron of triangulation to include all the newly-acquired territory. A longitudinal series was carried across the continent to Karáchi by Colonel Strange, and there a new base was measured; and another from Debra to near Altock on the Indus; which were connected by a series along the valley of that river. Sir Andrew Waugh retired in 1861, having during 17 years pushed forward the work with such ability and energy, that his successor could see his way to its completion in a specified number of years.

Hitherto the offices of Surveyor-General and Superintendent of the Great Trigonometrical Survey had been united. On the retirement of Sir Andrew Waugh they were separated. Colonel Thuillier became Surveyor-General, and Colonel Walker was appointed Superintendent of the Great Trigonometrical Survey in March 1861. Colonel Walker's opening work was the completion of Sir Andrew Waugh's north-western gridiron; and the measurement of a base line at Vizagapatam, where a longitudinal series from Bombay was eventually to touch the east coast. The Coast Series was then completed from Calcutta to Madras. It will be remembered that the Madras Observatory was the fixed point from which Colonel Lambton started with his triangulation in 1802. It was the first on which the whole fabric rested. Now, after a lapse of 62 years, the triangulation was brought back to the

old starting-point, and in 1864 the Coast Series was completed. Thence a new series was carried over Lambton's old ground at Bangalore, and in 1867 Colonel Walker gave orders for the re-measurement of the Bangalore base line. The difference between the result by measurement and that by triangulation from the Vizagapatam base was one quarter of an inch! The last base necessary for the verification of the triangles, within the limits of India proper was measured near Cape Comorin in 1869. The various series necessary for the completion of the whole system have since been steadily pushed forward in the face of great difficulties, caused chiefly by the wild and pestilential regions through which it was necessary to carry the triangles. The wonderful network, as will be seen by a glance at the map, is nearly completed. In 1872–73 the Bilaspur and Mangalur Series were finished, and work was proceeding in the Assam valley, on the Brahmaputra Series, and in Rajputana. Next year the survey will be resumed in British Burma; and all the series may be completed in four or five years. Besides the triangulation, the department under Colonel Walker conducts levelling and tidal operations, pendulum and astronomical observations, and the topographical survey of the Himalayas, Kattiwar, and Gujarat. But its main object is to furnish a basis for all geographical and topographical operations within the limits of British India, by means of which errors may be eliminated from local surveys, and the exact positions of a number of fixed points on the earth's surface may be shown. Geodetic investigations have proceeded *pari-passu* with the trigonometrical and linear measurements, consisting of astronomical observations of the latitudes of principal stations, combined astronomical and telegraphic determinations of the differences of longitude, and pendulum observations. The cost of the Great Trigonometrical Survey is about 60,000*l.* a year; 11,228*l.* for the head quarters' expenditure, including drawing of maps, reductions, and computations; 21,000*l.* for the trigonometrical operations; 21,608*l.* for the topographical parties; and about 8,000*l.* for the levelling and geodetical work. The map shows the system on which the meridional and longitudinal series is planned.

The triangulation of the geodesists is the skeleton which the topographical surveyor supplies with flesh and blood. The positions of numerous places, spread over the area to be surveyed, are fixed with greatest accuracy; and they become the starting points, and form the frame work upon which the topographical surveyors proceed to fill in the detail. These fixed points also serve as checks upon the accuracy of the topographical surveys. Colin Mackenzie was the founder of topographical surveys in India, based on triangulation. He first suggested the establishment of the Madras Military Institution, which trained the officers who originally surveyed the peninsula of India, and between 1799 and 1809 he was engaged in the survey of Mysore and the Deccan. From 1810 to 1824 the maps of the different provinces of the Madras Presidency were completed, which have not yet been superseded; while Colebrooke, Hodgson, and Herbert mapped portions of the North-West Provinces and the Himalayan districts, and Monier Williams made a route survey of the northern districts of the Bombay Presidency. The first Burmese war led to valuable work being done by Wilcox and Pemberton in Assam and on the north-eastern frontier, and a large scale survey of the territory of the Nizam was commenced in 1816 and completed in about forty years. But the present system of topographical and revenue surveys dates from the appointment of Colonel Thuillier as Sir Andrew Waugh's assistant, after the first Punjab war, in 1847. Since that date they have been conducted with ever increasing efficiency and with annually improving arrangements for extending the sphere of their usefulness. In 1851 the official manual of surveying for India, by Captains Smith and Thuillier, laid down the principles on which the surveys should be conducted, and furnished full details for the guidance of the Department. There are two classes of surveys, called topographical and revenue, the one mainly intended for the delineation of natural features in wild districts yielding little revenue, and in Native States; the other, on larger scales, also defining the boundaries of villages, estates, and fields with extreme accuracy. Both should be based on the fixed points of the Great Trigonometrical Survey.

The most interesting and valuable topographical surveys executed in Sir Andrew Waugh's time were those of the highland country of the Sind Sagar Doab by Colonel Robinson, and of Kashmir and Ladak by Major Montgomerie. At the time that Colonel Thuillier took charge in 1861, there were four topographical survey parties at work in Central India, the Nizam's territory, Gaujom, and Chota Nagpur. When their work was completed, there still remained 319,338 square miles to be surveyed

XV. SURVEYS AND STATISTICS.

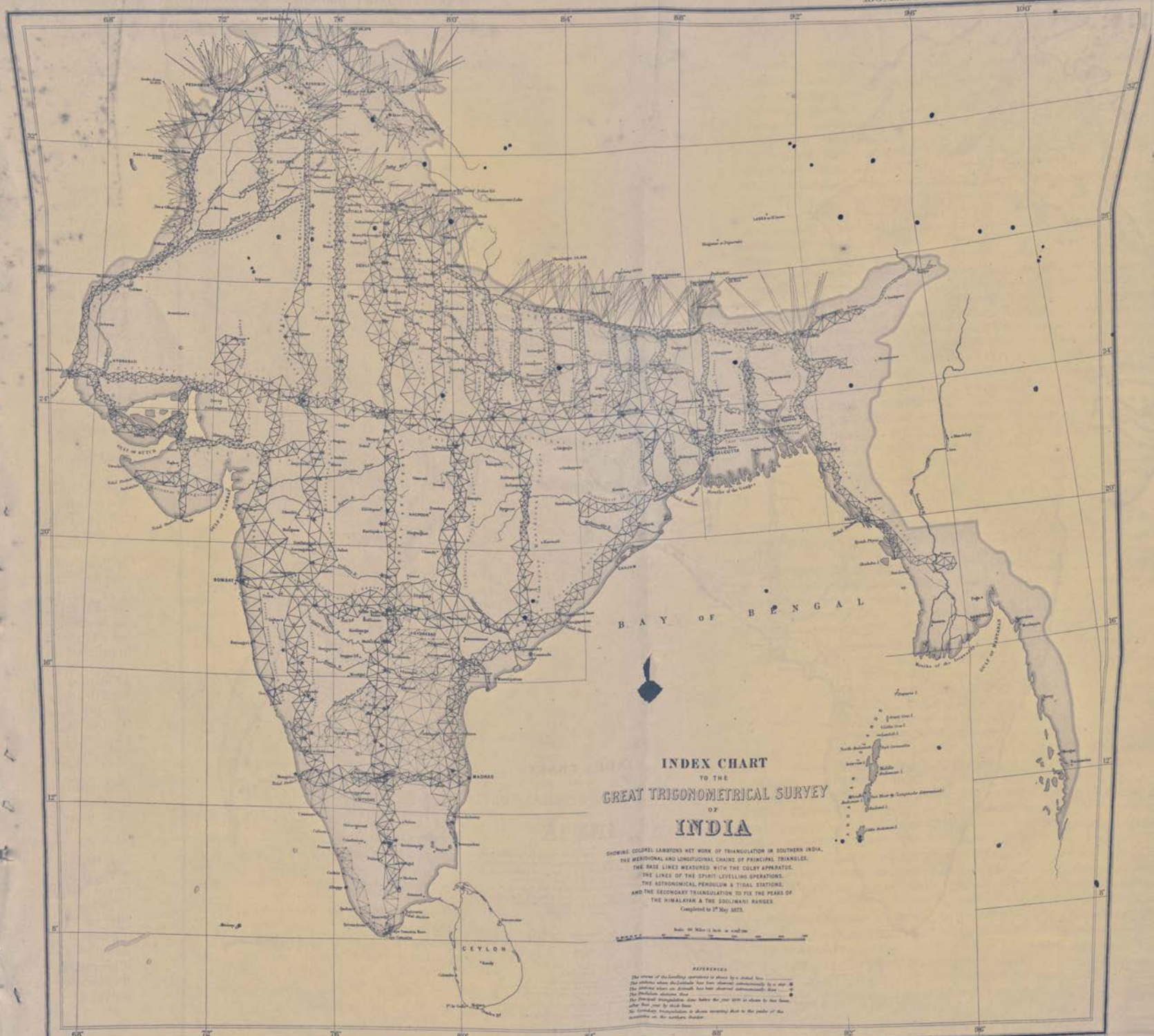
in the Native States, and 21,134 in the wild hill tracts of eastern Bengal; exclusive of territory in the Madras and Bombay Presidencies. In 1862 a fifth party was organised, to survey Rewah. There are now seven topographical survey parties in the field and during 1872–73 the total amount of work done was 25,327 square miles, 6,136 in British territory and 19,191 in Native States, on scales of one, and four miles to an inch. In 1872–73 the first party, under Lieutenant Holdich, was at work in Central India, in the wild country near the river Chumbul. Mr. Girdlestone was surveying part of the Narbada Valley and the district of Nemar; and Colonel Saxton was in the wild and inhospitable hill tracts of the Kizagapatam Agency. Major Depree surveyed a portion of the south-west side of the Rewah State, including the Amarkantak plateau, where, within a few hundred yards of each other, rise the rivers Narbada, Son, and Mahanadi. Captain Riddell was at work in some of the Malwa Native states; and Captain Strahan delineated 2,760 square miles of Rajputana, including a portion of the ridge of the Aravalli hills. The pressing demands of the Bengal Government for the exploration and completion of the surveys in the northern Chittagong hill tracts, the Tipperah Lushai, Cachar, Garo, and Naga hills, and along the northern Munipúr frontier, necessitated special arrangements. Major Godwin Austen explored a portion of the Patkoi range, and Lieutenant Woodthorpe completed the examination of the Garo hills. The cost of these topographical surveys averages £2. 4*s*. per square mile, and the total annual cost is £34,500 a year. An immense area remains to be surveyed on the one inch scale, the completion of which is urgently required for geographical, military, and general administrative purposes. The aggregate result of topographical and revenue surveys, from 1847 to 1873, is 743,802 square miles, at a cost of £2,002,833. The whole annual assignment for trigonometrical, topographical, and revenue surveys is now £240,000.

The revenue surveys have already been treated of in the section on land revenue. They should be good topographical and cadastral surveys, useful both for fiscal and for general administrative purposes. But as yet cadastral surveys on accurate principles have only been introduced into the Madras Presidency and four districts of the North-West Provinces. It is, however, the policy of the Government of India gradually to introduce a correct and uniform system in all parts of the country, but this will be a work of time.

The talent for organisation which distinguishes Colonel Thuillier has been most conspicuously displayed in the arrangements for rapidly reducing, compiling, and publishing the work of the surveyors. In the Surveyor's General Office at Calcutta there are engraving, lithographing, and photographing branches; and this rapid utilisation of the field work, an immense public advantage, may be said to be entirely due to Colonel Thuillier. The cost of the publishing department is about £16,000 a year. The completion of the engraving of the Indian Atlas was transferred to Calcutta in 1869, and excellent progress has been made; while Native apprentices are being trained as engravers on copper. In 1872–73 as many as 1,611 maps were photographed, of which 105,753 copies were printed from zinc, besides 2,010 silver prints, and about 3,000 photo-collotypes. In the lithographic branch 481 new maps and plans were produced, and 159,652 copies were taken. No less than 271,528 copies of maps have been struck off during the year. Thus the publishing department in India ensures the rapid utilisation of the surveys, and its operations have been attended with remarkable success.

In this country there are two important duties to be performed with reference to Indian surveys. The one is the supply of proper instruments for their execution; and the other is the preservation and dissemination of their results. The first is secured through the agency of the Inspector of Scientific Instruments, the other by the Geographical Department of the India Office.

The supply of instruments is obviously the most important duty, because, without efficient tests, inaccuracy, waste, and needless expense are inevitable. Yet it was long before any proper arrangements for the supply of good instruments were made. Colonel Lambton was in constant difficulties with his instruments because he had no means of getting repairs done, and no trusty coadjutor in England to refer to. In 1821 Colonel Hodgson declared that the instruments sent out by contract were not such as a good observer would consent to use. Sir George Everest saw these evils very plainly. He personally superintended every detail in the construction of his instruments while he was in England, watching their progress day by day, and examining them at every stage. When he returned to India in 1830 he established a


BAY OF BENGAL
CEYLON
INDEX CHART
TO THE
GREAT TRIGONOMETRICAL SURVEY
OF
INDIA
SHOWING COLONEL LAMBTONS NET WORK OF TRIANGULATION IN SOUTHERN INDIA,
THE MERIDIONAL AND LONGITUDINAL CHAINS OF PRINCIPAL TRIANGLES,
THE BASE LINES MEASURED WITH THE COLBY APPARATUS,
THE LINES OF THE SPIRIT-LEVELLING OPERATIONS,
THE ASTRONOMICAL PENDULUM & TIDAL STATIONS,
AND THE SECONDARY TRIANGULATION TO FIX THE PEAKS OF
THE HIMALAYAN & THE SOOLIMANI RANGES.
Completed to 1st May 1873.
REFERENCES

Fourth Edition.

COMPILED UNDER THE ORDERS OF COL. J. T. WALKER R.E., F.R.S. &c. SUPERINTENDENT GREAT TRIGONOMETRICAL SURVEY OF INDIA. AT DEHRA DOON, AUGUST 1870.

Engraved at the Surveyor General's Office
Calcutta Nov.r 1870.

A photo-lithographical reduction with the spelling unrevised. India Office, London, 1874.

mathematical instrument manufactory at Calcutta under Mr. Borrow, where much good work was done and indeed the second great theodolite was built there. Mr. Borrow was succeeded by Synd Mohsin, a native of Arcot of great mechanical talent; on whose death, in 1865, Mr. Wehlisch, a mechanician from Mr. Cooke's establishment at York, was engaged, and the factory continues to turn out plenty of useful work.

But all instruments, especially all that require nicety and accuracy in their construction, must still be made in this country; and, moreover, they must have the benefit of scientific supervision of the highest order, if they are to prove efficient in such a service as the Indian Survey. It was obvious that the Superintendent of the Great Trigonometrical Survey or the Surveyor-General could only be in England at intervals of several years, while the supervision of instruments was a constant requirement. In 1863 Colonel Strange was appointed to examine and test all instruments ordered for India, and a suitable Observatory was erected for his use, at the warehouse of the Store Department of the India Office in Lambeth. Complete and searching methods are here provided for the examination of graduated circles, for testing spirit levels and telescopes, small surveying instruments, and for every kind of mathematical and meteorological instruments. All patterns have been abolished, as obstacles to improvement, as well as competition in price. Instruments are entrusted to the best makers, and are subjected to rigorous inspection, Colonel Strange's decision on them being accepted as final. His most absorbing work has been the designing and superintendence of the construction of the grand new set of instruments for the Trigonometrical Survey, consisting of a great theodolite, with a three-foot horizontal circle; two zenith sectors, two transit instruments, two vertical circles, two galvanic chronographs, and three astronomical clocks. The zenith sectors were designed by Colonel Strange on a new plan, his endeavour being to combine maximum power with minimum weight. The first zenith sector reached India in 1870. The transit instruments, chronogrophs, and astronomical clocks were first used in 1873, to determine the difference of longitude on an arc of parallel, between Madras and Mangalore; and the great theodolite reached India in 1874. In 1872 there were 18,000 instruments inspected, which cost 20,845*l*. The number of different kinds of instruments ordered through Colonel Strange is 150; many have to be carefully individually examined and tested, and some require to be taken to pieces.

The duty of preserving and utilising in this country and abroad the results of the Indian surveys is performed by the Geographical Department of the India Office. From the death of Horsburgh, in 1836, to the year 1869, all geographical and kindred subjects were deprived of separate departmental supervision, and the maps, journals, and other records of the surveys were cast aside to rot and perish. Those which were not lost were frayed and dust-stained, and finally a quantity were sold as waste paper. Yet there remained a most valuable collection of maps and records, and in 1869 a Geographical Department at the India Office was constituted, in compliance with the urgent representations of the Surveyor-General. First, the valuable and, in some respects, unique collection of geographical records was arranged, catalogued, and made safe from further deterioriation. Next a system was established for bringing the maps emanating from the great national surveys of India within reach of geographers and other enquirers in this country. Thus the map collection at the India Office serves two purposes; the record and preservation of original documents, and the ready supply of information for official and general purposes. Almost all official enquiries and all statistics are ultimately based on surveys. In the Public Works Department scarcely a subject can be properly understood without illustrations by means of maps and plans. In the Political and Military Departments the use of maps is equally essential. In the various branches of the Revenue Department few questions of importance are clearly intelligible without map illustration. As regards the Judicial Department, the demand for maps comes not only from the India Office, but also from that of the Privy Council; and in many appeal cases a reference to old maps forms an essential part of the evidence. In the consideration and illustration of statistical questions, accurate surveys and maps are still more important. No progress can be made without them. The locality, time, and number in which facts occur are the elements to be kept in mind in statistical reasoning; and almost all statistical facts must be treated on the basis of geographical distribution.

Statistical data are collected and published in India. They first appear in the Survey and Meteorological Reports, the Census Reports, the monographs on

XV. SURVEYS AND STATISTICS.

Special Products,* the Trade and Navigation Returns, the Finance and Revenue Accounts, the Irrigation and Railway Reports, the Education Reports, the Sanitary and Vaccination Reports, the Police and Judicial Returns, and others. From these are compiled, on a uniform plan,† the annual Administration Reports for Bengal, the North-West Provinces, the Punjab, Oudh, the Central Provinces, Berar, Mysore, Curg, Rajputana, Central India, Bombay, Madras, and British Burma.‡ The plan is to furnish a sort of general introduction having reference to the previous administrative history of the province; to give the details of the year's proceedings in the prescribed form—which is somewhat artificial—and to conclude with a series of statistical tables. Some of the Administration Reports are furnished with maps. But, as will have been seen from various allusions to the subject in the previous Sections, statistical data in India are still very incomplete. In the first place, the surveys are not nearly finished; and for the cartographic illustration of statistical questions a good map of India, on a convenient scale, is very urgently needed. The Census returns are also incomplete. The Census for Bengal, the North-West Provinces, the Central Provinces, Bombay, Madras and Mysore was taken early in 1872.§ But the last enumeration of the Punjab was in 1868; of Oudh, in 1869; and there is complete uncertainty as to the population of the rest of India. The attempts to obtain accurate vital statistics are as yet only attempts.‖ As regards agricultural statistics, the machinery for their record exists in some parts of India, but hitherto they have not been supplied with any approach to completeness.¶ The industrial survey has not been commenced. Trade returns, especially as regards minor ports, the overland routes, and internal traffic, are very incomplete. Still there are steady efforts to organise machinery for the collection and comparison of statistical returns, and the accuracy of the information that is supplied from India is increasing year by year.

* *Coffee.*—Report on the Coffee District of Wynaad, Chinchona Blue Book.
Tea.—Report by Mr. Edgar, presented to Parliament 1874.
Tobacco.—Report by Mr. O'Connor, presented to Parliament 1874.
Silk.—Report by Mr. Geoghegan, presented to Parliament 1874.
Jute.—Report presented to Parliament 1874.
Chinchona.—Blue Books, *passim*.
Cotton.—Reports. Bengal by Mr. Medlicott; Madras by Mr. Talboys Wheeler; Bombay by Mr. Cassells; Reports by Mr. Rivett Carnac.
Lac.—Note on Lac by Mr. O'Connor.

† The form prescribed for the preparation of the Annual Administration Reports of Indian Provinces is as follows:—

I. *Statistics of Physical, Political, and Fiscal Geography.*	III. *Statistics of Production and Distribution.*	IV. *Statistics of Instruction.*	V. *Statistics of Life.*
A. Physical Geography.	A. Finance.	A. Ecclesiastical.	A. Births, Deaths, and Marriages.
B. Relations with Native States.	B. Public Works.	B. Education.	B. Hospital Returns.
C. Population.	C. Railways.	C. Literary and Scientific.	C. Vaccination Returns.
D. Civil Divisions.	D. Agriculture.		
E. Land Revenue.	E. Prices of Produce and Labour.		
II. *Statistics of Protection.*	F. Mines.		
A. Legislative.	G. Manufactures.		
B. Judicial.	H. Trade.		
C. Prisons.	I. Coinage and Currency.		
D. Police.	K. Charitable Institutions		
E. Military.			
F. Marine.			

‡ The Administration Report for British Burma for 1872-73 was received too late for incorporation into this report.

§ See p. 115. ‖ See p. 119. ¶ See p. 34.

STATISTICAL TABLES

COMPILED FOR THE

STATEMENT EXHIBITING THE MORAL AND MATERIAL PROGRESS AND CONDITION

INDIA

During the Year 1872-3.

GEOGRAPHICAL DEPARTMENT,
India Office, 1874.

C. E. D. BLACK.

No. 1.

AREA AND POPULATION OF BRITISH INDIA.

Province.	Constitution of Government.	Area.			Total area.	Population.	Date of Census.	Mileage of communications.			Density of Population per square mile.
		Cultivated.	Culturable.	Unculturable.				Water.	Roads.	Railways.	
		Square miles.	Square miles.	Square miles.	Square miles.			Miles.	Miles.	Miles.	
Bengal*	Lieutenant-Governor and Legislative Council	Not given.	Not given.	Not given.	248,231	66,856,859	Early part of 1872	Not given.	Not given.	1,298	269
Madras	Governor, Council, and Legislative Council	Not given.	Not given.	Not given.	139,698	31,597,872	November 1871	Not given.	15,759	836	226
North-West Provinces	Lieutenant-Governor	42,173	12,108	27,121	81,402	30,769,056	January 1872	Not given.	Not given.	Not given.	378
Punjab	Lieutenant-Governor	34,438	28,285	41,025	103,748	17,596,752	January 1868	2,470	20,798	410	170
Bombay and Sind	Governor, Council, and Legislative Council	Not given.	Not given.	Not given.	124,943	16,352,623	February 1872	Not given.	Not given.	2,270	131
Oudh	Chief-Commissioner	12,673	5,588	4,781	23,042	11,220,032	February 1869	1,678	4,225	235	469
Central Provinces	Chief-Commissioner	22,860	28,404	33,631	84,895	8,201,519	January 1872	1,674	2,079	466	96
British Burmah	Chief-Commissioner	3,522	36,162	48,680	88,364	2,747,148	August 1872	6,395	815	Nil.	30
Ajmir	Under Government of India	Not given.	Not given.	Not given.	2,672	426,268	January 1865	Not given.	Not given.	Not given.	159
Curg	Under Government of India	Not given.	Not given.	Not given.	2,000	168,312	November 1871	Not given.	Not given.	Not given.	84
Mysore	Chief-Commissioner	Not given.	Not given.	Not given.	27,077	5,055,412	November 1871	Not given.	1,817	Not given.	187
Berar	Chief-Commissioner	Not given.	Not given.	Not given.	17,334	2,231,565	November 1867	Not given.	Not given.	Not given.	128

* Including Assam, which is now (1874) under a Chief-Commissioner.

No.

REVENUE and EXPENDITURE, and RECEIPTS and DISBURSEMENTS for the Year ended

		No. of Account.	No. of Page.	India.	England.	TOTAL.
				£	£	£
Balance, 1st April, 1871		54	128	16,818,743	3,305,972	20,124,715
Revenue		1	6	49,888,552	221,663	50,110,215
Net Traffic Receipts from Guaranteed Companies:						
Net Traffic Receipts in India	£ 2,926,576					
Less Amount repaid to the East Indian Railway Company as Surplus Profit	54,628					
	£2,868,948	4	8	2,868,948	—	—
DEBT:						
Permanent Debt incurred		47	123	17,465,277	* 1,413,406	18,878,683
Temporary or Floating Debt incurred		—	—	—	—	—
Treasury Notes, bearing Interest, issued to Service Funds		49	124	164,065	—	164,065
Receipts of Service Funds bearing Interest		50	124	932,628	—	932,628
Savings Bank Deposits received		51	125	750,434	—	750,434
PROVINCIAL SERVICES AND LOCAL FUNDS		52	126	9,981,605	—	9,981,605
DEPOSITS, ADVANCES, &c.:						
Deposits		53	126	5,042,651	—	5,042,651
Repayment of Advances		—	—	3,193,718	5,562	3,199,280
Repayment of Sums advanced on loan to Municipalities, Native States, &c.		61	134	46,837	—	46,837
Receipts on account of Railway Capital		57	130	28,885	3,689,096	3,717,981
Remittances between Districts		—	—	253,487	—	253,487
Miscellaneous		—	—	2,693,550	—	2,693,550
ACCOUNTS BETWEEN PRESIDENCIES:						
Amount of Bills drawn, Remittances of Treasure, Advances recovered		—	—	18,736,769	—	18,736,769
ACCOUNTS BETWEEN INDIA AND ENGLAND:						
Amount received for Bills drawn by Secretary of State on Treasuries in India		—	—	—	10,310,339	10,310,339
Other Remittance Transactions		—	—	1,194,891	100,273	1,295,164

* Sale Proceeds of £1,390,000 India 4 per Cent. Stock.

† This Total is exclusive of the sum of £2,868,948 Net Traffic Receipts of Guaranteed Companies.

2.

of the GOVERNMENT of *India*, in *India* and in *England*, 31st March 1872.

	No. of Account.	No. of Page.	India.	England.	TOTAL.
			£	£	£
Expenditure, Ordinary	2	7	37,282,803	7,980,017	45,262,820
Guaranteed Interest on the Capital of Railway and other Companies	3	8	45,930	4,546,236	—
India			£ 45,930		
England			4,546,236		
TOTAL			£4,592,166		
Deduct—Net Traffic Receipts			2,868,948		
			£1,723,218		
Charge on Indian Revenues for Guaranteed Interest	—	—	—	—	1,723,218
Total Ordinary Expenditure and Charge for Guaranteed Interest	—	—	—	—	46,986,038
Extraordinary Expenditure	5	9	1,480,797	147,677	1,628,474
Total Expenditure	—	—	—	—	48,614,512
DEBT:					
Permanent Debt discharged	47	123	16,307,360	5,000	16,312,360
Temporary or Floating Debt paid off	—	—	—	—	—
Treasury Notes of Service Funds paid off	49	124	104,008	—	104,008
Payments out of Deposits of Service Funds bearing Interest	50	124	971,115	—	971,115
Savings Bank Deposits repaid	51	125	599,151	—	599,151
PROVINCIAL SERVICES AND LOCAL FUNDS	52	126	9,637,237	—	9,637,237
DEPOSITS, ADVANCES, &c.:					
Deposits	53	126	5,523,241	—	5,523,241
Advances repayable	—	—	3,086,150	8,434	3,094,584
Advances by way of Loan to Municipalities, Native States, &c.	61	134	464,048	—	464,048
Payments to Railway and other Guaranteed Companies out of Capital Funds	57	130	1,126,696	2,499,011	3,625,707
Remittances between Districts	—	—	566,929	—	566,929
Miscellaneous	—	—	2,719,245	—	2,719,245
ACCOUNTS BETWEEN PRESIDENCIES:					
Amount of Bills paid, Remittances of Treasure, Advances made	—	—	18,198,093	—	18,198,093
ACCOUNTS BETWEEN INDIA AND ENGLAND:					
Amount of Secretary of State's Bills paid in India	—	—	9,560,924	—	9,560,924
Other Remittance transactions	—	—	389,598	1,038,845	1,428,443
Balance, 31st March 1872	54	128	21,997,715	2,821,091	24,818,806

	£		£
Income	50,110,215	Income	50,110,215
Ordinary Expenditure	46,986,038	Total Expenditure	48,614,512
Excess of Income over Ordinary Expenditure	£3,124,177	Excess of Income over Total Expenditure	£1,495,703

* This Total is less than the sum of the two preceding columns by the amount of Net Traffic Receipts of Guaranteed Companies, the charge for interest being stated net.

No. 3.

Revenues and Charges for Year ended 31st March, 1873, compared with those of Previous Year.

RECEIPTS.	Actual, 1871-72.	Actual, 1872-73.	Increase.	Decrease.
	£	£	£	£
Land Revenue	20,520,337	21,348,669	828,332	—
Tributes and Contributions from Native States.	744,036	741,465	—	2,571
Forest	501,924	570,337	68,413	—
Excise on Spirits and Drugs	2,369,109	2,323,788	—	45,321
Assessed Taxes	825,241	580,139	—	245,102
Customs	2,575,990	2,653,890	77,900	—
Salt	5,966,595	6,165,630	199,035	—
Opium	9,253,859	8,684,691	—	569,168
Stamps	2,476,333	2,608,512	132,179	—
Mint	96,128	54,250	—	41,878
Post Office	820,894	580,312	—	240,582
Telegraph	206,580	229,186	22,606	—
Law and Justice	373,160	392,686	19,526	—
Marine	194,925	207,943	13,018	—
Interest	327,906	439,553	111,647	—
Receipts in aid of Superannuation, Retired, & Compassionate Allowances.	585,634	494,335	—	91,299
Miscellaneous	335,067	256,408	—	78,659
Army	889,340	885,545	—	3,795
Public Works Ordinary	87,519	64,202	—	23,317
„ „ Irrigation	471,580	413,535	—	58,045
Railways, Guaranteed (Gain by Exchange).	262,629	286,645	24,016	—
„ State	3,766	16,533	12,767	—
Total, India	49,888,552	49,998,254		
Receipts in England	221,663	221,235	—	428
			1,509,439	1,400,165
			1,400,165	
Total £	50,110,215	50,219,489	109,274	

CHARGES.	Actual, 1871-72.	Actual, 1872-73.	Increase.	Decrease.
	£	£	£	£
Refunds and Drawbacks	285,537	325,065	39,528	—
Land Revenue (includes Allowances to District and Village Officers).	2,428,319	2,449,957	21,638	—
Forest	350,566	388,118	37,552	—
Excise on Spirits and Drugs	135,347	130,557	—	4,790
Assessed Taxes	29,566	13,244	—	16,322
Customs	184,921	180,375	—	4,546
Salt	470,178	476,646	6,468	—
Opium	1,595,694	1,813,976	218,282	—
Stamps	88,416	83,452	—	4,964
Mint	77,978	80,890	2,912	—
Post Office	616,115	616,412	297	—
Telegraph	366,012	362,756	—	3,256
Allowances and Assignments under Treaties and Engagements.	1,705,174	1,730,554	25,380	—
Administration	1,234,681	1,232,709	—	1,972
Minor Departments	227,517	310,308	82,791	—
Law and Justice	2,267,444	2,218,895	—	48,549
Marine	376,705	360,836	—	15,869
Ecclesiastical	155,611	150,938	—	4,673
Medical	174,807	176,262	1,455	—
Political Agencies	266,442	343,734	77,292	—
Superannuation, Retired and Compassionate Allowances.	609,312	701,514	92,202	—
Loss by Exchange on Transactions with London.	395,964	765,109	369,145	—
Miscellaneous	337,209	78,695	—	258,514
Provincial Services	4,848,205	5,223,190	374,985	—
Army	12,036,098	11,979,327	—	56,771
Public Works Ordinary :— Public Works (including Supervision and Cost of Land for Guaranteed Railways, and, up to 1871-72, Loss by Exchange on Railway Transactions).	2,481,495	2,599,136	117,641	—
State Railways	8,227	22,004	13,777	—
Interest on Permanent and Floating Debt	3,032,672	2,834,764	—	197,908
Interest on Service Funds and other Accounts.	496,591	555,789	59,198	
Total, India £	37,282,803	38,205,212		
Expenditure in England	6,730,977	6,991,988	261,011	
Ditto, for Stores transmitted to India.	1,249,040	1,146,119	—	102,921
Guaranteed Interest on Railway Capital, less net Traffic Receipts.	1,723,218	2,110,501	387,283	
			2,188,837	721,058
			721,058	
Total £	46,986,038	48,453,817	1,467,779	

No. 4.

FOREIGN TRADE.

EXPORTS.—1. Indian Produce and Manufactures.

Countries whither Exported.	COFFEE. Free.				COTTON GOODS (Piece Goods, Twist, &c.) 3 per cent. duty.	
	Quantities in lbs.		Value in Rupees.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	6,300	—	1,125	—	6,86,208	9,22,499
Africa	22,903	35,220	4,307	9,738	21,944	42,434
America	—	12,056	—	32,016	35,302	50,480
Australia	—	—	—	—	—	—
Belgium	—	—	—	—	—	—
Bourbon	—	—	—	—	—	—
Ceylon	624,420	31,168	1,42,936	1,06,084	11,29,716	10,93,460
China	—	—	—	—	5,97,362	6,68,033
Denmark	—	—	—	—	—	—
France	9,688,523	10,601,515	22,13,615	26,55,463	6,800	—
Germany	548,856	2,122,242	1,22,501	5,72,246	—	—
Gibraltar	—	—	—	—	—	—
Holland	202,580	—	45,219	—	—	—
Hong Kong	—	—	—	—	—	—
Japan	—	—	—	—	—	—
Java	—	—	—	—	—	—
Junkseylon	—	—	—	—	—	—
Laccadives and Maldives	—	—	—	—	21,194	19,558
Mauritius	32,168	51,459	4,081	11,206	29,574	26,307
Mediterranean Ports	955,729	214,581	2,22,839	54,487	—	—
Nicobars	—	—	—	—	2,563	1,597
Persian Gulf	2,477,172	1,206,321	5,08,141	3,60,475	69,830	85,389
Red Sea	1,384,498	818,641	3,27,476	2,19,458	2,20,393	2,07,033
Russia	—	—	—	—	—	—
Siam	—	—	—	—	—	—
Sonmiyani and Mekran	—	—	—	—	47,701	47,054
Spain	—	—	—	—	—	—
Suez	83,475	22,820	22,870	6,112	1,52,646	2,09,180
Straits Settlements	—	—	—	—	3,89,724	4,56,026
Sumatra	—	—	—	—	26,973	18,950
Switzerland	—	—	—	—	—	—
Turkey	270,704	81,396	71,249	25,501	—	—
United Kingdom	40,054,715	25,862,024	100,01,968	72,31,952	2,55,368	2,73,527
West Indian Islands	—	—	—	—	—	—
Other Countries	11,795	3,262	1,161	750	6,340	7,990
Total	56,363,838	41,462,705	1,36,89,488	1,12,85,488	36,99,638	41,29,517
Share of each Presidency, &c.:						
Bengal	9,929	41,351	1,139	8,983	2,21,312	2,80,440
Bombay	4,306,591	1,637,151	9,00,498	4,32,213	16,95,173	20,04,766
British Burmah	—	—	—	—	6,626	3,129
Madras	52,047,318	39,781,819	1,27,87,851	1,08,43,562	17,45,940	18,17,408
Sind	—	2,384	—	730	30,587	23,774

No. 4.—*cont.*

FOREIGN TRADE.

EXPORTS.—1. Indian Produce and Manufactures.

Countries whither Exported.	COTTON (Raw). Free.				DYES (other than Indigo and Lac). Free.		GRAIN (other than Gram, Paddy, Rice, and Wheat). 8 annas per maund duty.	
	Quantities in lbs.		Value in Rupees.		Value in Rupees.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	—	39,480	—	10,440	1,030	—	9,335	30,902
Africa	—	15,904	—	1,760	—	—	3,314	2,816
America	—	—	—	—	59,615	72,979	—	—
Australia	—	—	—	—	—	—	—	—
Belgium	7,818,200	—	19,22,500	—	3,530	—	—	—
Bourbon	—	—	—	—	—	—	22,705	—
Ceylon	737,479	245,688	1,69,338	56,436	1,275	2,785	2,83,933	1,27,210
China	18,181,336	19,286,035	50,53,137	52,99,006	10,179	—	8,969	2,115
Denmark	—	—	—	—	—	—	—	—
France	89,928,594	25,657,838	2,43,40,271	75,70,817	36,910	38,242	—	1,554
Germany	9,556,576	2,603,400	24,87,338	9,04,249	5,180	—	—	—
Gibraltar	—	—	—	—	—	—	—	—
Holland	12,543,590	1,137,300	31,16,625	1,72,557	—	—	—	—
Hong Kong	25,150,235	25,703,266	65,39,010	65,57,839	—	—	—	—
Japan	—	—	—	—	—	—	—	—
Java	—	—	—	—	4,286	—	—	—
Junkseylon	—	—	—	—	—	—	—	—
Laccadives and Maldives	—	—	—	—	—	—	1,794	—
Mauritius	98,745	22,846	19,078	3,352	—	—	7,06,465	3,40,498
Mediterranean Ports	54,200,368	41,764,402	1,46,57,853	1,22,80,771	1,689	22,749	—	—
Nicobars	—	—	—	—	—	—	—	—
Persian Gulf	67,760	125,269	3,186	5,944	2,602	4,755	1,67,924	4,188
Red Sea	73,528	64,120	22,760	20,580	—	—	14,962	48,129
Russia	12,637,296	4,613,392	34,03,771	14,88,541	—	—	—	—
Siam	—	—	—	—	—	—	—	—
Sonmiyani and Mekran	—	78,400	—	30,000	—	—	13,426	31,209
Spain	—	—	—	—	—	—	—	—
Suez	29,260	10,034,024	9,525	30,60,570	—	—	—	—
Straits Settlements	1,009,551	589,577	1,84,942	116,787	6,039	5,204	54,747	18,879
Sumatra	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—
Turkey	—	—	—	—	—	—	—	1,769
United Kingdom	577,213,335	362,233,450	15,07,94,910	10,26,41,427	22,89,750	23,67,846	7,876	—
West Indian Islands	—	—	—	—	—	—	12,140	35,457
Other Countries	234	56	53	6	1,703	2,063	1,831	985
Total	809,246,087	494,214,447	21,27,24,297	14,02,21,082	24,23,788	25,16,623	13,09,421	6,45,711
Share of each Presidency, &c.:								
Bengal	164,476,961	79,752,618	4,03,69,555	17,791,297	13,00,206	10,89,080	7,28,240	3,95,422
Bombay	540,404,613	324,852,718	14,82,07,374	1,01,374,748	5,85,479	7,04,577	74,467	60,311
British Burmah	15,248,741	12,811,921	29,11,194	24,93,921	—	—	32,887	13,999
Madras	73,771,643	65,783,567	1,68,49,419	1,53,78,799	5,37,273	7,22,794	2,33,835	85,891
Sind	15,344,129	11,013,623	43,86,755	31,82,317	830	172	2,39,992	90,088

No. 4.—*cont.*

FOREIGN TRADE.

EXPORTS.—1. Indian Produce and Manufactures.

Countries whither Exported.	GRAM. 3 annas per maund duty.				HIDES and SKINS (Tanned). 3 per cent. duty.				HIDES and SKINS (Raw). Free.			
	Quantities in cwts.		Value in Rupees.		Numbers.		Value in Rupees.		Numbers.		Value in Rupees.	
	1871–2.	1872–3.	1871–2.	1872–3.	1871–2.	1872–3.	1871–2.	1872–3.	1871–2.	1872–3.	1871–2.	1872–3.
Aden		564		2,218	—	391	—	1,116	—	71,674	—	1,75,875
Africa		628		2,937	—	—	—	—	—	—	—	—
America		—		—	570,918	980,444	2,91,703	4,90,081	3,690,322	3,218,035	42,32,622	40,56,652
Australia		—		—	—	—	—	—	—	—	—	—
Belgium		—		—	—	—	—	—	41,944	76,556	82,300	156,350
Bourbon		18,962		58,290	—	—	—	—	—	—	—	—
Ceylon		68,250		2,12,388	17,044	22,008	8,508	12,692	—	—	—	—
China		3,485		9,572	—	—	—	—	—	3,300	—	4,025
Denmark		—		—	—	—	—	—	—	—	—	—
France		—		—	—	3,325	—	2,821	475,334	707,124	8,38,205	11,78,615
Germany		—		—	—	—	—	—	34,131	8,361	99,595	14,990
Gibraltar		1,605		2,500	—	—	—	—	—	—	—	—
Holland		—		—	—	—	—	—	14,469	4,449	32,610	8,900
Hong Kong		—		—	—	—	—	—	—	—	—	—
Japan		—		—	—	—	—	—	—	—	—	—
Java		—		—	—	—	—	—	—	—	—	—
Junkseylon		—		—	—	—	—	—	—	—	—	—
Laccadives and Maldives		—		—	—	—	—	—	—	—	—	—
Mauritius		—		—	17,649	4,106	9,915	3,093	—	—	—	—
Mediterranean Ports		176,191		4,64,823	33,547	70,213	19,257	56,515	751,281	1,537,157	14,91,184	32,72,023
Nicobars		—		—	—	—	—	—	—	—	—	—
Persian Gulf		486		1,819	—	—	—	—	1,006	543	3,225	1,935
Red Sea		—		—	—	—	—	—	—	—	—	—
Russia		—		—	—	—	—	—	—	—	—	—
Siam		—		—	—	—	—	—	—	—	—	—
Sonmiyani and Mekran		—		—	—	—	—	—	—	—	—	—
Spain		—		—	—	—	—	—	—	—	—	—
Suez		—		—	34,981	18,000	17,715 & 25*	9,000	11,121	28,622	24,820	24,193
Straits Settlements		20,604		46,980	374,960	254,232	1,90,443	1,29,325	257,779	251,698	4,68,421	4,85,669
Sumatra		—		—	—	—	—	—	—	—	—	—
Switzerland		—		—	—	—	—	—	—	—	—	—
Turkey		—		—	—	—	—	—	20,422	16,212	48,097	44,951
United Kingdom		—		—	7,492,184	9,867,794	45,54,200 & 51,820*	62,74,031	6,201,538	5,843,672	1,27,62,940 & 24,191*	1,28,09,477
West Indian Islands		—		—	—	—	—	—	—	—	—	—
Other Countries		625		1,913	1,098	669	1,571	537	2,231	1,030	4,940 & 295*	1,289
Total		291,400		8,03,440	8,542,381	11,221,182	50,93,312 & 51,845*	69,79,211	11,501,578	11,768,433	2,00,88,959 & 24,486*	2,22,34,944
Share of each Presidency, &c.:												
Bengal		188,89		5,08,428	531,832	1,049,829	2,77,978	5,40,365	10,689,669	9,788,504	1,86,25,159	1,81,55,582
Bombay		1,142		5,932	1,080,027	2,042,735	9,71,889 & 51,845*	15,14,996	335,908	1,015,826	6,57,236 & 24,486*	23,65,575
British Burmah		25,365		50,180	1,605	3,352	2,017	10,761	282,831	367,840	5,12,855	6,84,439
Madras		75,123		2,35,847	6,927,260	8,119,222	38,40,195	49,01,528	133,512	271,071	1,59,368	3,37,825
Sind		876		3,058	1,657	6,044	1,233	11,561	59,658	325,192	1,34,341	6,91,523

Included in Grain—other sorts.

Included in Grain—other sorts.

* Entered at value only.

No. 4.—*cont.*

FOREIGN TRADE.

EXPORTS.—1. Indian Produce and Manufactures.

Countries whither Exported.	INDIGO. 3 Rupees per maund duty.				JUTE (Raw). Free.			
	Quantities in cwts.		Value in Rupees.		Quantities in cwts.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	14	—	1,960	100*	—	—	—	—
Africa	3	—	1,400	—	—	—	—	—
America	5,808	3,103	21,37,795	7,97,445	1,040,527	1,466,613	51,66,955	55,16,189
Australia	—	—	—	—	—	282	—	1,921
Belgium	37	—	16,000	—	—	—	—	—
Bourbon	—	—	—	—	—	—	—	—
Ceylon	455	—	1,34,419	154*	967	1,664	7,403	11,803
China	—	—	—	—	—	—	—	—
Denmark	—	—	—	—	—	—	—	—
France	15,672	18,515	49,41,142 100*	58,65,830	72,943	148,876	4,19,726	8,65,513
Germany	102	68	46,650 90*	17,311	19,687	—	1,39,955	—
Gibraltar	—	—	—	—	—	—	—	—
Holland	—	2,860	—	8,81,427	2,679	5,357	18,750	19,085
Hong Kong	—	—	—	—	5,906	3,398	46,272	20,577
Japan	—	—	—	—	—	—	—	—
Java	—	—	—	—	—	—	—	—
Junkseylon	—	—	—	—	—	—	—	—
Laccadives and Maldives	—	—	—	—	—	—	—	—
Mauritius	—	—	—	—	—	—	—	—
Mediterranean Ports	12,678	9,545	47,33,032	32,07,403 153*	21,252	9,580	1,32,922	61,665
Nicobars	—	—	—	—	—	—	—	—
Persian Gulf	2,400	4,766	5,26,941	9,71,220	—	—	—	—
Red Sea	107	196	15,050	27,325	—	—	—	—
Russia	998	261	3,50,011 60*	85,819	—	—	—	—
Siam	—	—	—	—	—	—	—	—
Sonmiyani and Mekran	34	47	3,050	4,270	—	—	—	—
Spain	—	—	—	—	—	—	—	—
Suez	468	1,457	1,25,465	3,95,873	—	—	—	—
Straits Settlements	—	—	—	—	—	452	—	3,556
Sumatra	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—
Turkey	240	188	90,425	51,513	—	—	—	—
United Kingdom	76,398	74,306	2,37,53,894	2,19,62,390	4,960,748	5,444,670	3,52,40,328	3,49,24,825
West Indian Islands	—	—	—	—	—	—	—	—
Other Countries	—	—	136*	11*	104	20	770	342
Total	115,414	115,312	3,68,77,234 & 386*	3,42,68,244 418*	6,133,813	7,080,912	4,11,73,081	4,14,25,476
Share of each Presidency, &c.:								
Bengal	66,929	85,496	2,46,51,714 150*	2,69,94,163	6,128,394	7,061,951	4,11,39,408	4,12,79,439
Bombay	1,165	1,018	1,52,288 196*	1,50,667	648	18,551	6,395	1,43,742
British Burmah	—	—	—	—	—	—	—	—
Madras	44,598	26,521	1,17,59,977 40*	69,02,835	4,771	410	27,278	2,295
Sind	2,722	2,277	3,13,255	2,20,161	—	—	—	—

* Entered at value only.

No. 4.—*cont.*

FOREIGN TRADE.

EXPORTS.—1. Indian Produce and Manufactures.

Countries whither Exported.	JUTE (Manufactured). Free. Value in Rupees.		OILS (Vegetable, but not essential, Animal, and Mineral): 3 per cent. duty. Quantities in gallons.		OILS (Vegetable, but not essential, Animal, and Mineral): 3 per cent. duty. Value in Rupees.		OILS (Essential and other sorts). 3 per cent. duty. Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	8,603	14,630	26,179	20,713	41,376	32,719	16,990	12,161
Africa	12,950	57,641	3,871	28,720	4,930	35,774	6,495	4,884
America	10,68,020	5,45,586	19,995	29,477	21,977	32,722	—	—
Australia	1,88,125	3,80,567	139,501	79,175	1,49,455	84,866	—	—
Belgium	3,200	—	—	—	—	—	—	—
Bourbon	—	—	1,664	—	1,815	—	—	—
Ceylon	1,15,884	1,77,194	67,626	53,131	81,975 26*	60,728	3,666	2,709
China	—	—	41,424	57,131	44,624	61,206	3,030	8,473
Denmark	—	—	—	—	—	—	—	—
France	12,525	1,080	28,464	114,215	34,801	1,58,386	2,400	—
Germany	—	—	47,062	148,661	53,943	2,07,395	—	—
Gibraltar	—	—	—	—	—	—	—	—
Holland	—	—	14,362	—	20,035	—	—	—
Hong Kong	37,160	54,868	—	—	—	—	—	—
Japan	6,919	—	—	—	—	—	—	—
Java	22,400	9,000	—	—	—	—	—	—
Junkseylon	—	—	—	1,153	—	1,360	—	—
Laccadives and Maldives	—	1,668	1,539	844	1,677	1,111	—	—
Mauritius	—	—	124,982	78,837	1,35,631	86,770	—	7,031
Mediterranean Ports	1,142	56,952	1,771	32,279	1,940	51,360	—	—
Nicobars	—	—	—	—	—	—	—	—
Persian Gulf	1,575	5,940	81,813	115,970	1,17,897	1,82,350	2,655	—
Red Sea	—	—	4,182	4,208	6,346	6,286	33,789	32,733
Russia	—	—	5,139	5,289	8,260	8,500	—	—
Siam	—	—	—	—	—	—	—	—
Sonmiyani and Mekran	2,910	—	3,618	3,355	4,775	4,663	—	—
Spain	—	—	—	—	—	—	—	—
Suez	2,510	14,511	—	—	—	—	—	10,748
Straits Settlements	3,43,863	5,57,575	54,770	54,137	58,694 2,398*	53,332	16,375	6,182
Sumatra	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—
Turkey	—	5,324	—	—	—	—	16,593	14,018
United Kingdom	57,555	9,362	2,536,529	1,655,231	32,05,081 15,061*	21,39,380	24,714	31,390
West Indian Islands	1,770	—	6,659	6,569	7,136	7,051	—	—
Other Countries	1,475	3,514	950	1,768	1,064	1,839	1,560	2,086
Total	18,88,586	18,95,412	2,212,100	2,490,863	40,03,432 17,485*	32,17,798	1,28,267	1,32,415
Share of each Presidency, &c.:								
Bengal	18,76,078	18,72,179	811,380	514,491	8,71,468 81*	5,59,313	5,283	7,324
Bombay	3,076	15,649	336,585	312,161	5,32,618	4,92,447	1,12,700	98,762
British Burmah	6,385	6,750	34	34,525	50 17,404*	11,831	—	—
Madras	459	432	2,026,501	1,570,340	25,45,904	20,68,341	10,284	26,329
Sind	2,588	402	37,600	59,346	53,392	85,866	—	—

* Entered at value only.

No. 4.—*cont.*

FOREIGN TRADE.

EXPORTS.—1. Indian Produce and Manufactures.

Countries whither Exported.	OPIUM. Free.				PADDY. 3 annas per maund duty.				RICE. 3 annas per maund duty.			
	Quantities in chests.		Value in Rupees.		Quantities in cwts.		Value in Rupees.		Quantities in cwts.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	—	—	—	—	—	—	—	—	90,682	67,722	3,08,290	2,47,405
Africa	6	22	8,250	27,745	—	—	—	—	64,685	140,424	2,51,381	5,56,537
America	—	—	—	—	—	—	—	—	34,983	128,919	1,40,222	3,31,955
Australia	1	—	1,340	—	—	—	—	—	129,888	88,818	5,84,434	4,51,203
Belgium	—	—	—	—	—	—	—	—	—	21,521	—	34,530
Bourbon	11	—	14,645	—	—	—	—	—	265,697	148,236	7,02,867	4,20,739
Ceylon	13	35	16,785	47,020	313,549	310,437	5,17,600	5,81,291	2,369,868	2,978,551	78,13,209	94,58,163
China	44,866	42,360	6,64,38,085	5,80,79,988	—	—	—	—	325,077	402,892	9,69,789	10,30,881
Denmark	—	—	—	—	—	—	—	—	38,310	14,643	89,688	29,955
France	—	—	—	—	—	—	—	—	138,235	10,144	3,16,690	25,468
Germany	—	—	—	—	—	—	—	—	226,267	111,831	5,04,983	2,19,339
Gibraltar	—	—	—	—	—	—	—	—	—	174,206	—	3,82,675
Holland	—	—	—	—	—	—	—	—	81,134	158,842	1,65,957	3,32,893
Hong Kong	40,604	33,971	5,62,96,711	4,72,16,747	—	—	—	—	34,364	45,492	70,136	90,695
Japan	—	—	—	—	—	—	—	—	—	—	—	—
Java	10	—	12,350	—	—	—	—	—	—	239,634	—	6,53,041
Junkseylon	—	—	—	—	—	—	—	—	80,110	132,940	1,73,897	3,35,708
Laccadives and Maldives	—	—	—	—	1,318	—	1,296	—	91,131	70,294	2,24,620	1,77,236
Mauritius	4	2	5,490	2,825	—	—	—	—	1,119,719	2 435,035	31,19,562	64,65,108
Mediterranean Ports	—	—	—	—	—	—	—	—	30,337	208,461	68,199	3,92,640
Nicobars	—	—	—	—	—	—	—	—	—	—	—	—
Persian Gulf	—	—	—	—	—	—	—	—	1,352,368	904,048	48,67,554	30,30,886
Red Sea	—	—	—	—	—	—	—	—	110,606	122,468	5,23,323	5,63,567
Russia	—	—	—	—	—	—	—	—	441	26,671	2,400	49,538
Siam	—	—	—	—	—	—	—	—	43,618	—	85,937	—
Sonmiyani and Mekran	—	—	—	—	—	—	—	—	9,003	22,349	35,115	69,383
Spain	—	—	—	—	—	—	—	—	—	—	—	—
Suez	—	—	—	—	—	—	—	—	—	46,287	—	93,750
Straits Settlements	7,845	6,458	1,08,53,106	88,08,520	4,929	9,187	6,152	13,546	1,764,067	1,752,288	39,42,477	38,28,607
Sumatra	—	—	—	—	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—	—	—	—	—
Turkey	—	—	—	—	—	—	—	—	11,760	5,621	49,301	24,447
United Kingdom	4	60	5,520	79,950	—	—	—	—	8,148,546	11,923,449	1,82,20,356	2,59,02,199
West Indian Islands	—	—	—	—	—	—	—	—	429,710	591,773	12,34,394	18,14,881
Other Countries	—	—	—	—	599	535	684	1,076	284	238	1,098	959
Total	93,364	82,908	13,36,52,282	11,42,62,795	320,395	320,159	525,732	595,913	16,990,890	22,973,797	4,44,65,879	5,70,14,388
Share of each Presidency, &c.:												
Bengal	49,455	40,507	6,85,23,802	5,61,32,057	33,445	37,982	45,016	51,960	5,091,746	7,401,077	1,41,35,547	1,95,41,461
Bombay	43,909	42,401	6,51,28,480	5,81,30,738	—	4	—	16	498,043	357,652	26,41,220	18,22,557
British Burmah	—	—	—	—	38,874	37,021	59,470	45,350	9,231,424	13,629,028	1,98,90,598	2,84,97,192
Madras	—	—	—	—	248,076	245,152	421,246	4,98,587	2,118,335	1,837,718	75,96,438	69,96,595
Sind	—	—	—	—	—	—	—	—	51,342	48,322	2,02,076	1,56,583

No. 4.—*cont.*

FOREIGN TRADE.

EXPORTS.—1. Indian Trade and Manufactures.

Countries whither Exported.	SALTPETRE. Free.				SEEDS (including Linseed, Mustard, Rape, Poppy, Teel, and essential). 3 per cent. duty.				SEEDS (other sorts). 3 per cent. duty.	
	Quantities in cwts.		Value in Rupees.		Quantities in cwts.		Value in Rupees.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	—	—	—	—	402	1,572	6,256	14,413 and 2*	—	2,032
Africa	—	143	—	1,228	984	840	8,586	10,261	2,314	1,867
America	67,262	115,039	6,99,673	12,00,748	1,565,033	1,156,081	78,24,299	57,81,507	33,502	—
Australia	1,063	1,107	12,347	13,265	241	—	1,203	—	—	—
Belgium	3,671	—	26,292	—	2,143	—	10,714	—	—	—
Bourbon	—	4,725	—	56,700	—	351	—	1,406	—	—
Ceylon	358	774	3,735	8,107	26,673	23,339	1,43,334	1,25,930	3,65,029	68,433
China	—	2,334	—	25,420	—	198	—	1,144	—	9,287
Denmark	—	—	—	—	—	—	—	—	—	—
France	8,095	14,790	68,210	1,64,720	859,561	429,395	46,35,400	25,75,909	5,98,836	1,62,882
Germany	—	—	—	—	—	—	—	—	—	—
Gibraltar	—	—	—	—	—	—	—	—	—	—
Holland	—	—	—	—	864	—	4,338	—	—	—
Hong Kong	32,788	58,799	3,40,289	6,62,929	—	—	—	—	—	—
Japan	—	—	—	—	—	—	—	—	—	—
Java	1,004	—	9,028	—	1,293	—	7,364	—	—	2,000
Junkseylon	—	—	—	—	—	—	—	—	—	—
Laccadives and Maldives	—	—	—	—	222	306	1,407	1,934 20*	—	—
Mauritius	1,188	4,200	10,800	38,693	4,600	1,719	27,667	9,489	3,693	4,799
Mediterranean Ports	—	4,338	—	55,404	1,100	—	6,600	125*	2,46,436	29,664
Nicobars	—	—	—	—	—	—	—	—	—	—
Persian Gulf	—	—	—	—	1,172	1,079	8,404	7,406 and 342*	6,061	9,122
Red Sea	—	—	—	—	2,215	1,557	18,483	17,147	1,119	2,873
Russia	—	—	—	—	—	—	—	—	—	—
Siam	—	—	—	—	—	—	—	—	—	—
Sonmiyani and Mekran	—	—	—	—	—	—	—	—	—	—
Spain	—	—	—	—	42,357	8,390	2,54,135	50,342	—	19,688
Suez	—	—	—	—	—	—	—	643*	—	—
Straits Settlements	5,632	6,169	55,599	65,400	18,976	13,000	1,03,863	70,986	19,075	5,649
Sumatra	—	—	—	—	—	299	—	1,200	—	—
Switzerland	—	—	—	—	—	—	—	—	—	—
Turkey	—	—	—	—	—	—	—	—	—	—
United Kingdom	311,062	301,953	27,45,738	30,15,196	2,595,673	1,139,876	1,25,43,231	56,88,427	3,90,767	3,97,167
West Indian Islands	—	4,594	—	55,125	153	142	1,296	1,191	—	—
Other Countries	87	17	803	200	1,103	1,099	5,298	5,436	3,333	1,687
Total	432,210	518,982	39,72,514	53,63,135	5,124,765	2,779,243	2,56,10,878	1,43,64,128 1,132*	16,70,165	7,17,150
Share of each Presidency, &c.:—										
Bengal	424,638	500,201	39,06,762	51,80,121	3,998,167	2,221,772	1,95,07,947	1,11,52,351 20*	7,65,750	48,945
Bombay	6,044	9,991	50,429	91,486	342,566	111,322	17,17,242	6,01,769 1,112*	60,705	60,153
British Burmah	—	—	—	—	37	—	148	—	6,279	747
Madras	1,348	8,569	14,728	90,328	608,698	442,945	35,49,608	25,93,713	8,35,003	6,05,046
Sind	180	221	595	1,200	175,297	3,204	8,35,933	16,295	2,428	2,259

* Entered at value only.

No. 4.—*cont.*

FOREIGN TRADE.

EXPORTS.—I. Indian Produce and Manufactures.

Countries whither Exported.	SILK (Raw). Free.				SILK (Manufactured.) Free.		SUGAR, and other Saccharine matter. Free.			
	Quantities in lbs.		Value in Rupees.		Value in Rupees.		Quantities in cwts.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	42,674	40,778	1,07,830	1,13,398	95,998	84,725	4,948	8,104	65,105	97,523
Africa	464	1,121	3,197	9,834	12,409	17,590	1,473	1,614	16,979	18,736
America	—	—	—	—	20,157	6,385	—	—	—	—
Australia	—	—	—	—	—	—	—	—	—	—
Belgium	—	—	—	—	—	—	—	—	—	—
Bourbon	—	—	—	—	14,169	1,755	—	—	—	—
Ceylon	—	—	—	—	66,296	84,807	16,449	19,575	1,77,044	2,16,474
China	—	—	—	—	3,092	3,380	—	—	—	—
Denmark	—	—	—	—	—	—	—	—	—	—
France	180,279	512,877	14,96,579	30,55,455	72,386	80,421	908	1,857	7,264	18,571
Germany	—	—	—	—	—	—	—	—	—	—
Gibraltar	—	—	—	—	—	—	—	—	—	—
Holland	—	—	—	—	—	—	—	—	—	—
Hong Kong	—	—	—	—	—	—	—	—	—	—
Japan	—	—	—	—	—	—	—	—	—	—
Java	—	—	—	—	3,000	2,250	—	—	—	—
Junkseylon	—	—	—	—	—	—	—	—	501*	912*
Laccadives and Maldives	—	—	—	—	4,829	4,495	1,890	1,361	30,720	16,979
Mauritius	—	—	—	—	26,379	35,306	—	—	—	—
Mediterranean Ports	71,895	207,210	5,15,488	13,96,415	4,656	28,203	—	—	—	—
Nicobars	—	—	—	—	—	—	—	—	—	—
Persian Gulf	6,628	8,181	31,109	42,768	96,231	1,16,602	8,338	13,918	1,18,735	1,96,119
Red Sea	1,088	1,381	3,708	5,070	90,443	75,854	7,862	8,134	85,088	85,532
Russia	—	—	—	—	—	—	—	—	—	—
Siam	—	—	—	—	—	—	—	—	—	—
Sonmiyani and Mekran	3,028	—	11,455	—	1,698	1,532	254	431	3,729	5,745
Spain	—	—	—	—	—	—	—	—	—	—
Suez	5,676	531	12,206	2,740	24,472	32,910	1,395	212	20,972	3,456
Straits Settlements	—	—	—	—	98,588	57,516	221	—	1,726	—
Sumatra	—	—	—	—	15,707	8,428	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—	—	—
Turkey	—	—	—	—	—	—	—	—	—	—
United Kingdom	1,581,507	1,458,884	86,28,802	79,36,693	8,74,419	12,15,328	329,128	575,655	23,51,376	42,66,528
West Indian Islands	—	—	—	—	—	—	—	—	—	—
Other Countries	83	615	597	1,188	1,692	2,761	31	77	186 57*	605 252*
Total	1,893,322	2,231,578	1,08,10,971	1,25,63,561	15,26,621	18,70,248	372,897	630,938	28,79,924 558*	49,26,268 1,164*
Share of each Presidency, &c.:										
Bengal	1,838,388	2,187,535	1,06,64,449	1,24,32,871	10,79,229	14,68,784	146,804	170,913	14,64,317 14*	18,27,398 249*
Bombay	54,337	43,313	1,43,378	1,27,940	3,25,840	3,08,150	12,520	[illegible]020	1,55,735 5*	2,19,826 912*
British Burmah	—	—	—	—	—	—	—	[illegible]	539*	—
Madras	429	157	2,387	435	1,21,286	72,803	213,497	440,828	12,58,897	28,77,143
Sind	168	573	757	2,315	266	511	76	182	975	1,901 3*

* Entered at value only.

No. 4.—*cont.*

FOREIGN TRADE.

EXPORTS.—1. Indian Produce and Manufactures.

Countries whither Exported.	TEA. Free.				TEAK. Free.			
	Quantities in lbs.		Value in Rupees.		Quantities in tons.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	—	—	—	—	—	—	—	—
Africa	—	—	—	—	—	—	—	2,010*
America	63,619	88,761	48,227	81,000	—	—	—	—
Australia	42,866	70,658	42,367	67,193	—	—	—	—
Belgium	—	—	—	—	—	—	—	—
Bourbon	—	—	—	—	—	—	—	—
Ceylon	3,063	3,753	3,061	3,800	550	2,008	33,870	1,13,982
China	—	—	—	—	1,846	590	1,18,160	38,400
Denmark	—	—	—	—	35	—	2,450	—
France	—	—	—	—	—	—	—	—
Germany	30,100	—	30,100	—	—	84	—	5,258
Gibraltar	—	—	—	—	—	—	—	—
Holland	—	—	—	—	—	—	—	—
Hong Kong	9,672	1,333	9,625	1,432	—	—	—	—
Japan	—	—	—	—	—	—	—	—
Java	—	—	—	—	534	—	34,710	—
Junkseylon	—	—	—	—	—	25	—	1,410
Laccadives and Maldives	—	—	—	—	—	—	—	—
Mauritius	—	—	—	—	3,184	1,067	2,11,216	66,931
Mediterranean Ports	5,568	—	5,284	—	—	929	—	74,367
Nicobars	—	—	—	—	—	—	—	—
Persian Gulf	—	653	—	1,059	293	341	11,971 708*	15,077 1,000*
Red Sea	—	—	—	—	—	157	705*	5,161
Russia	—	—	—	—	—	—	—	—
Siam	—	—	—	—	—	—	—	—
Sonmiyani and Mekran	—	—	—	—	—	—	—	—
Spain	—	—	—	—	—	—	—	—
Suez	—	—	—	—	—	—	—	—
Straits Settlements	15,466	76,090	5,849	14,748	595	206	33,330	13,522
Sumatra	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—
Turkey	16,888	21,867	14,592	17,698	—	—	—	—
United Kingdom	16,997,563	17,522,301	1,43,88,597	1,55,85,890	35,387	44,993	24,63,892	32,24,522
West Indian Islands	—	—	—	—	—	—	—	—
Other Countries	2,523	4,495	2,144	4,087	35	43	1,441 1,761*	825* 1,392
Total	17,187,328	17,789,911	1,45,49,846	1,57,76,907	42,459	50,443	29,11,040 3,174*	35,60,022 3,835*
Share of each Presidency, &c.:—								
Bengal	17,14,105	17,629,156	1,44,84,084	15,63,693	—	—	6*	1,460*
Bombay	9,065	24,152	9,070	25,360	—	—	200*	1,700*
British Burmah	15,904	76,281	6,400	15,269	42,134	49,716	28,97,868	675* 35,34,869
Madras	32,916	41,674	44,938	50,623	325	727	13,172 1,555*	25,153
Sind	5,338	18,648	5,354	21,962	—	—	—	—

No. 4.—*cont.*

FOREIGN TRADE.

EXPORTS.—1. INDIAN PRODUCE AND MANUFACTURES.

Countries whither Exported.	TOBACCO, and articles used in the consumption of. Free.		WHEAT. 8 annas per maund duty till 4th January 1873, after which free.			
	Value in Rupees.		Quantities in cwts.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	4,69,661	2,263	5,977	21,772	31,561	94,694
Africa	—	—	7,011	6,512	33,957	33,436
America	—	—	—	—	—	—
Australia	1,243	—	—	—	—	—
Belgium	—	—	—	—	—	—
Bourbon	3,223	—	20,360	16,366	56,013	49,869
Ceylon	16,971	9,662	21,091	21,755	1,03,395	1,06,001
China	1,587	1,517	—	—	—	—
Denmark	—	—	—	—	—	—
France	—	5,000	594	—	3,193	—
Germany	8,572	—	—	—	—	—
Gibraltar	4,520	—	—	—	—	—
Holland	—	—	—	—	—	—
Hong Kong	—	—	—	—	—	—
Japan	—	—	—	—	—	—
Java	—	—	4,475	735	13,125	3,000
Junkseylon	—	—	—	—	—	—
Laccadives and Maldives	14,065	4,320	—	—	—	—
Mauritius	88,106	4,177	62,503	80,278	2,50,879	3,18,707
Mediterranean Ports	1,077	1,258	—	1,187	—	5,073
Nicobars	—	—	—	—	—	—
Persian Gulf	4,127	4,434	209,299	8,125	9,07,993	31,390
Red Sea	92,500	—	14,232	3,695	71,608	18,541
Russia	—	—	—	—	—	—
Siam	—	—	—	—	—	—
Sonmiyani and Mekran	—	—	1,068	2,139	3,900	7,027
Spain	—	—	—	—	—	—
Suez	—	—	—	—	—	—
Straits Settlements	63,445	18,016	47,247	32,322	1,51,544	1,19,387
Sumatra	4,225	—	—	—	—	—
Switzerland	—	—	—	—	—	—
Turkey	—	—	—	—	—	—
United Kingdom	10,958	17,990	243,093	198,771	7,28,678	8,88,611
West Indian Islands	—	—	—	—	—	—
Other Countries	1,941	4,630	149	353	599	1,164
Total	7,86,221	73,267	637,099	394,010	23,56,445	16,76,900
Share of each Presidency, &c.:						
Bengal	99,433	21,766	346,979	145,005	10,22,234	4,90,831
Bombay	5,64,463	11,263	127,945	74,856	6,63,009	3,93,561
British Burmah	13,561	12,757	5,980	—	36,837	—
Madras	1,07,975	27,147	3,836	6,144	13,653	29,663
Sind	789	334	152,359	168,005	15,712	7,62,845

No. 4.—*cont.*

FOREIGN TRADE.

EXPORTS.—1. Indian Produce and Manufactures.

Countries whither Exported.	WOOL (Raw). Free.				WOOL (Manufactured). Free.		Total value in Rupees of Indian Exports to each Country.	
	Quantities in lbs.		Value in Rupees.		Value in Rupees.			
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	—	—	—	—	6,634	4,933	20,43,999	24,51,944
Africa	—	—	—	—	1,375	5,805	5,20,918	10,29,556
America	190,736	—	49,597	—	10,602	3,793	2,29,77,393	2,02,56,356
Australia	—	—	—	—	—	—	10,34,586	10,58,352
Belgium	—	—	—	—	—	—	20,61,636	1,91,368
Bourbon	—	—	—	—	—	—	9,47,003	6,35,580
Ceylon	—	—	—	—	42,580	33,276	1,30,26,487	1,49,24,552
China	—	—	—	—	10,655	6,635	7,36,36,917	6,57,03,911
Denmark	—	—	—	—	—	—	90,183	29,955
France	58,800	87,136	20,900	37,550	9,52,710	19,58,713	4,16,99,229	2,66,80,881
Germany	—	—	—	—	—	—	35,53,818	19,64,517
Gibraltar	—	—	—	—	—	—	See under	Spain.
Holland	—	—	—	—	—	—	34,10,944	14,18,683
Hong Kong	—	—	—	—	3,978	—	6,38,33,130	5,50,39,565
Japan	—	—	—	—	—	—	7,934	—
Java	—	—	—	—	—	—	1,44,872	6,77,609
Junkseylon	—	—	—	—	—	—	1,83,567	3,46,623
Laccadives and Maldives	—	—	—	—	—	—	3,55,800	2,80,018
Mauritius	—	—	—	—	23,970	30,035	53,18,697	91,65,407
Mediterranean Ports	3,360	46,368	1,500	21,750	4,021	3,508	2,22,41,972	2,14,81,428
Nicobars	—	—	—	—	—	—	—	2,446
Persian Gulf	—	—	—	—	2,06,341	2,69,698	79,83,601	56,31,171
Red Sea	—	—	—	—	13,631	4,914	18,73,489	17,53,730
Russia	—	—	—	—	—	—	37,68,836	15,83,422
Siam	—	—	—	—	—	—	—	50,673
Sonmiyani and Mekran	—	—	—	—	—	—	1,44,865	1,94,115
Spain	—	—	—	—	—	—	2,59,825	4,82,705
Suez	—	—	—	—	72,427	1,12,475	5,56,850	40,62,641
Straits Settlements	—	—	—	—	8,124	9,635	1,89,44,844	1,68,01,881
Sumatra	—	—	—	—	—	—	54,437	46,934
Switzerland	—	—	—	—	—	—	—	1,155
Turkey	—	—	—	—	—	—	2,72,522	2,04,278
United Kingdom	23,869,666	20,260,206	89,57,000	83,21,046	4,77,122	8,92,624	32,46,03,823	27,82,92,130
West Indian Islands	—	—	—	—	—	—	12,81,674	19,57,845
Other Countries	—	1,008	—	72	3,116	2,909	57,652	2,402
Total	24,122,562	20,394,718	90,28,997	83,80,418	18,37,286	33,38,953	61,69,72,252	53,44,03,833
Share of each Presidency, &c.:								
Bengal	1,173	—	393	—	11,65,579	20,72,039	27,46,01,631	24,43,47,283
Bombay	21,65,253	18,367,382	79,30,579	72,37,696	6,12,429	11,96,766	23,71,30,267	18,40,61,081
British Burmah	—	—	—	—	—	—	2,78,69,515	3,76,67,507
Madras	—	2,724	—	272	56,663	69,498	6,92,83,934	6,18,40,874
Sind	2,166,136	2,024,612	10,98,025	11,42,450	2,615	650	79,86,905	64,87,088

No. 5.

FOREIGN TRADE.

INDIAN EXPORTS.—2. Principal Articles of Foreign Merchandize.

Countries whence Exported.	COTTON, Manufactures of.		GUMS.		IVORY and Manufactures of.		METALS.	
	Value in Rupees.		Value in Rupees.		Value in Rupees.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	8,03,891	7,20,550	—	2,029	—	—	56,205	47,665
Africa	17,82,626	19,53,235	4,286	6,123	—	—	28,356	21,652
America	—	—	2,358	—	—	—	1,00,845	1,58,379
Australia	—	—	—	—	—	—	5,425	—
Ceylon	51,174	37,082	1,502	1,958	—	—	18,057	12,783
China	1,92,629	62,681	20,609	55,100	52,508	87,791	16,946	36,742
France	—	1,408	—	1,854	1,063	1,607	7,713	7,376
Hong Kong	16,252	5,825	2,402	—	—	—	3,722	3,753
Japan	—	—	1,912	—	—	—	—	—
Junkseylon	—	—	—	—	—	—	1,780	—
Laccadives and Maldives	21,422	29,380	—	—	—	—	2,597	2,260
Mauritius	11,375	26,871	—	—	—	—	6,815	16,799
Mediterranean Ports	—	—	1,501	1,491	—	—	—	—
Nicobars	3,936	1,677	—	—	—	—	—	—
Persian Gulf	32,41,256	48,42,039	6,839	10,328	—	—	1,03,691	1,14,770
Red Sea	4,46,187	4,46,635	4,008	—	—	—	36,559	67,189
Russia	—	—	3,217	1,858	—	—	—	—
Sonmiyani and Mekran	99,186	94,667	—	—	—	—	4,416	3,960
Straits Settlements	12,39,403	16,57,537	7,463	26,423	1,628	—	54,878	52,311
Suez	1,81,978	1,07,857	—	—	—	—	—	6,859
Sumatra	42,465	41,271	—	—	—	—	—	—
Turkey	—	2,226	—	—	—	—	—	1,332
United Kingdom	80,611	10,941	2,42,711	3,19,797	5,63,619	9,58,693	2,62,258	6,89,463
West Indian Islands	—	—	—	—	—	—	2,525	12,170
Other Countries	2,838	4,222	2,744	3,354	360	602	12,401	10,895
Total	82,17,189	1,00,46,104	3,01,552	4,30,315	6,19,178	10,48,693	7,25,189	12,66,358
Share of each Presidency, &c.:								
Bengal	1,37,051	71,256	7,825	2,027	758	649	2,70,785	4,93,778
Bombay	77,26,691	95,00,308	2,92,029	4,02,764	6,18,280	10,48,044	4,10,633	7,16,475
British Burmah	6,832	6,987	—	24,250	—	—	4,888	12,293
Madras	3,11,332	4,16,662	1,698	1,274	140	—	36,186	36,649
Sind	35,283	50,891	—	—	—	—	2,697	7,163

Countries whence Exported.	SILK (Manufactured).		SILK (Raw).		SUGAR, and other Saccharine Matter.		WOOL (Manufactures of).		Total Value of Exports, including articles not mentioned.	
	Value in Rupees.		Value in Rupees.		Value in Rupees.		Value in Rupees.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	30,831	24,738	30,424	18,832	20,713	28,157	11,900	19,697	10,57,634	9,75,104
Africa	12,430	11,913	11,575	12,735	45,238	27,563	7,976	15,231	20,51,252	22,69,757
America	—	—	—	—	—	—	—	—	1,27,523	2,02,926
Australia	—	—	—	—	—	—	—	—	9,506	8,923
Ceylon	2,877	1,550	—	—	11,800	22,180	1,060	1,985	2,49,346	2,17,506
China	15,460	9,040	—	—	—	—	2,989	4,635	5,85,373	5,55,458
France	—	—	—	—	—	—	1,258	2,000	46,680	39,915
Hong Kong	1,097	—	—	—	—	—	—	—	43,461	75,028
Japan	—	—	—	—	—	—	—	—	22,212	3,466
Junkseylon	—	—	—	—	—	—	—	—	—	5,070
Laccadives and Maldives	—	—	—	—	—	—	—	—	32,688	35,657
Mauritius	6,378	5,608	—	—	—	—	—	2,030	79,299	1,55,226
Mediterranean Ports	—	—	1,204	—	—	—	—	—	59,274	49,797
Nicobars	—	—	—	—	—	—	—	—	—	1,822
Persian Gulf	26,083	60,222	17,124	44,140	4,36,901	3,93,635	25,194	46,023	43,75,377	59,79,819
Red Sea	4,080	6,632	14,799	8,922	77,407	21,365	2,954	—	6,36,545	6,23,243
Russia	—	—	—	—	—	—	—	—	—	7,874
Sonmiyani and Mekran	2,453	1,195	26,578	41,175	2,742	2,710	—	—	1,51,622	1,61,915
Straits Settlements	5,315	10,030	7,266	4,923	—	—	76,049	84,392	17,82,568	21,19,906
Suez	2,337	3,776	20,865	1,54,538	—	—	—	—	2,31,618	3,07,231
Sumatra	—	—	—	—	—	—	—	—	42,877	42,214
Turkey	—	—	4,640	4,202	—	—	—	—	8,585	15,452
United Kingdom	11,045	1,989	3,60,839	2,01,648	—	—	13,314	19,24[illegible]	32,48,953	39,87,178
West Indian Islands	—	—	—	—	—	—	—	—	13,535	28,006
Other Countries	1,245	1,101	800	190	1,067	912	1,083	1,659	30,294	2,624
Total	1,21,631	1,37,794	4,96,114	4,91,305	5,95,868	4,96,522	1,43,777	1,96,895	1,48[illegible]86,222	1,78,71,117
Share of each Presidency, &c.:										
Bengal	9,303	9,325	—	—	—	—	78,484	79,162	15,75,675	18,38,098
Bombay	1,11,791	1,23,129	4,91,473	4,91,115	5,94,973	4,95,536	55,882	1,12,977	1,24,17,646	1,52,32,074
British Burmah	446	5,280	—	—	—	—	2,905	3,964	38,008	1,02,289
Madras	91	60	4,641	190	710	540	6,185	792	7,78,340	6,05,802
Sind	—	—	—	—	185	446	321	—	76,553	92,854

No. 6.

FOREIGN TRADE.

Indian Imports.

Countries whence Imported.	APPAREL (including Haberdashery, Millinery, &c.) 7½ per cent. duty.		COAL and COKE. Free.				COTTON GOODS (including Piece Goods, Thread, and Twist). 3½, 5, and 7½ per cent. duty, respectively.	
	Value in Rupees.		Quantities in cwts.		Value in Rupees.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	6,050	—	3,740	2,705	2,048	2,197	13,271	15,003
Africa	—	—	—	—	—	—	3,712	1,466
America	4,290	16,228	—	8,820	—	7,243	72,963	5,859
Australia	6,211	2,837	118,333	30,220	85,017	29,494	—	1,279
Austria	—	—	—	—	—	—	—	—
Bourbon	—	—	—	—	—	—	—	—
Ceylon	33,971	36,857	27,720	4,362	17,851	4,518	31,64,826	30,89,160
China	60,672	91,148	—	—	—	—	36,589	35,810
Denmark	—	—	—	—	—	—	—	—
France	3,48,334	4,35,005	9,080	358,058	7,140	1,21,290	1,01,689	90,240
Germany	—	1,787	100,140	32,260	70,260	22,695	—	12,748
Gibraltar	—	—	—	—	—	—	—	—
Holland	—	—	2,050	—	1,025	—	—	—
Hong Kong	16,269	12,180	—	—	—	—	20,340	—
Japan	—	—	—	—	—	—	—	—
Java	—	—	—	8,000	—	8,000	—	—
Junkseylon	—	—	—	—	—	—	—	—
Laccadives and Maldives	—	—	—	—	—	—	—	—
Mauritius	—	—	—	—	—	—	—	—
Mediterranean Ports	34,511	39,653	—	—	—	—	5,37,063	4,24,709
Nicobars	—	—	—	—	—	—	—	—
Persian Gulf	7,654	11,524	—	—	—	—	15,405	39,792
Red Sea	2,714	—	—	—	—	—	31,558	1,044
Russia	—	—	—	—	—	—	—	—
Siam	—	—	—	—	—	—	—	—
Sonmiyani and Mekran	—	—	—	—	—	—	—	—
Spain	—	—	—	—	—	—	—	—
Suez	11,81,018	9,49,200	—	—	—	—	1,36,62,969	1,17,54,442
Straits Settlements	48,611	59,379	—	3,651	—	2,768	8,31,339	2,47,345
Sumatra	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—
Turkey	—	4,493	—	—	—	—	—	—
United Kingdom	32,43,489	43,50,716	7,219,004	6,043,810	49,62,656	47,80,548	15,66,14,839	16,29,25,939
West Indian Islands	—	—	—	—	—	—	—	—
Other Countries	1,917	1,572	3,276	880	1,944	664	10,291	8,748
Total	49,95,711	60,12,579	7,483,343	6,492,766	51,47,941	49,79,417	17,48,33,330	17,23,42,484
Share of each Presidency, &c.:—								
Bengal	18,40,490	23,67,617	1,812,718	984,088	12,17,438	7,71,096	10,30,35,942	9,96,36,821
Bombay	17,11,498	20,15,670	4,644,615	4,414,964	31,72,275	33,47,213	4,59,04,887	4,60,80,598
British Burmah	1,58,463	1,82,768	799,620	734,270	5,50,976	4,84,456	63,97,729	72,67,899
Madras	12,47,080	13,83,594	188,140	317,858	1,67,835	3,53,897	1,80,29,202	1,81,86,555
Sind	38,180	62,930	38,250	21,586	39,417	22,755	14,65,570	11,70,611

No. 6.—*cont.*

FOREIGN TRADE.

INDIAN IMPORTS.

Countries whence Imported.	DRUGS and MEDICINES. 7½ per cent. duty.		DYEING and COLOURING MATERIALS. 7½ per cent. duty.		GOVERNMENT STORES. Free.		GRAIN and PULSE. Free.	
	Value in Rupees.		Value in Rupees.		Value in Rupees.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	11,452	15,143	2,573	4,217	—	—	1,051	—
Africa	6,322	26,748	2,079	54,274	—	—	18,267	5,453
America	8,888	41,903	—	—	—	—	—	—
Australia	4,037	—	—	—	—	—	—	—
Austria	—	—	—	—	—	—	—	—
Bourbon	—	—	—	—	—	—	—	—
Ceylon	—	24,630	5,229	2,814	8,243	1,302	—	3,643
China	2,99,049	5,05,144	—	3,304	—	—	3,323	4,632
Denmark	—	—	—	—	—	—	—	—
France	26,023	35,732	48,993	17,593	—	—	—	—
Germany	—	—	—	—	—	—	—	—
Gibraltar	—	—	5,200	—	—	—	—	—
Holland	—	—	—	—	—	—	—	—
Hong Kong	96,170	95,074	—	4,002	—	72,972	—	—
Japan	—	—	—	—	—	—	—	—
Java	—	—	—	—	—	—	—	—
Junkseylon	—	—	—	—	—	—	—	—
Laccadives and Maldives	—	—	—	—	—	—	—	—
Mauritius	1,259	—	—	—	—	—	—	—
Mediterranean Ports	15,428	18,273	89,993	3,52,570	1,550	1,050	—	—
Nicobars	—	—	—	—	—	—	—	—
Persian Gulf	1,62,307	2,48,286	88,745	1,66,097	—	—	3,628	27,605
Red Sea	68,975	67,825	9,178	7,621	—	—	—	—
Russia	—	—	—	—	—	—	—	—
Siam	—	—	—	—	—	—	—	—
Sonmiyani and Mekran	—	—	—	—	—	—	19,532	3,084
Spain	—	—	—	—	—	—	—	—
Suez	88,193	42,087	5,67,917	3,37,344	22,015	—	—	—
Straits Settlements	2,63,275	2,68,469	1,04,700	1,34,351	—	—	10,644	17,782
Sumatra	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—
Turkey	—	2,535	—	—	—	—	—	—
United Kingdom	13,11,640	17,57,887	3,17,333	7,89,714	26,96,791	77,96,104	—	—
West Indian Islands	—	—	—	—	—	—	—	—
Other Countries	1,225	2,804	1,416	286	939	3,492	3,397	858
Total	23,64,243	31,52,540	12,43,296	18,74,187	27,29,718	78,74,920	59,842	63,057
Share of each Presidency, &c.:—								
Bengal	10,82,057	12,35,557	1,89,876	3,11,297	4,09,080	7,79,602	640	87
Bombay	10,00,029	16,11,332	10,19,868	15,10,758	40,762	33,76,114	42,818	55,766
British Burmah	35,245	33,963	11,746	11,987	88,014	[illegible]233	183	262
Madras	2,37,871	2,48,269	15,913	31,323	21,91,862	36,4[illegible]	1,092	3,866
Sind	9,041	23,419	5,893	8,822	—	74,[illegible]24	15,109	3,076

No. 6.—*cont.*

FOREIGN TRADE.

Indian Imports.

Countries whence Imported.	MACHINES AND MACHINERY. Free.		MALT LIQUORS. 1 anna per imperial gallon duty.				METALS. From 1 to 7½ per cent. duty.	
	Value in Rupees.		Quantities in Gallons.		Value in Rupees.		Value in Rupees.	
	1871-2.	1871-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	—	—	—	—	—	—	—	—
Africa	—	—	—	—	—	—	—	—
America	4,734	—	—	—	—	—	—	—
Australia	1,191	2,619	—	1,004	—	1,738	13,12,668	1,88,709
Belgium	—	—	—	—	—	—	—	—
Bourbon	—	—	—	—	—	—	—	—
Ceylon	37,500	11,302	1,133	2,117	3,279	6,316	61,134	—
China	1,100	—	—	1,032	—	1,913	1,41,785	3,15,846
Denmark	—	—	—	—	—	—	—	—
France	10,963	3,538	—	—	—	—	—	—
Germany	72,090	1,29,525	32,974	48,446	59,160	87,556	—	—
Gibraltar	—	—	—	—	—	—	—	—
Holland	—	—	6,192	—	11,874	—	—	—
Hong Kong	1,667	—	—	—	—	—	9,56,791	1,64,463
Japan	—	—	—	—	—	—	1,09,647	2,13,546
Java	—	—	—	—	—	—	—	—
Junkseylon	—	—	—	—	—	—	—	—
Laccadives and Maldives	—	—	—	—	—	—	—	—
Mauritius	—	—	—	—	—	—	—	—
Mediterranean Ports	2,333	19,344	864	2,801	2,066	7,619	—	1,49,333
Nicobars	—	—	—	—	—	—	—	—
Persian Gulf	—	—	—	—	—	—	—	—
Portugal	—	—	—	—	—	—	—	—
Red Sea	—	—	—	—	—	—	—	—
Russia	—	—	—	—	—	—	—	—
Siam	—	—	—	—	—	—	—	—
Sonmiyani and Mekran	—	—	—	—	—	—	—	—
Spain	—	—	—	—	—	—	—	—
Suez	132,433	90,301	1,883	19,677	3,781	45,144	5,76,490	1,77,325
Straits Settlements	—	—	953	612	2,229	1,301	12,45,945	8,61,424
Sumatra	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—
Turkey	—	—	—	—	—	—	—	—
United Kingdom	37,93,917	49,15,109	1,279,407	1,460,695	29,69,195	34,83,085	1,88,67,596	1,53,47,549
West Indian Islands	—	—	—	—	—	—	—	—
Other Countries	417	1,419	521	112	1,602	286	3,98,714	2,31,357
Total	40,58,345	51,73,157	1,323,927	1,536,496	30,53,186	36,34,958	2,36,09,636	1,76,49,552
Share of each Presidency, &c.:—								
Bengal	14,48,155	16,26,069	658,873	681,075	14,82,785	15,81,688	1,24,81,968	88,53,876
Bombay	12,65,263	23,68,032	264,896	356,619	6,31,936	8,28,335	85,16,443	65,63,472
British Burmah	6,02,998	7,56,692	165,167	163,373	3,45,631	3,32,806	5,80,771	6,46,657
Madras	1,64,222	2,34,285	166,233	279,727	4,38,613	7,64,867	18,33,822	14,03,848
Sind	5,77,707	1,88,079	68,758	55,702	1,54,221	1,27,262	1,96,632	1,81,699

No. 6.—*cont.*

FOREIGN TRADE.

Indian Imports.

Countries whence Imported.	PRECIOUS STONES AND PEARLS. Free.		RAILWAY MATERIALS. 1 and 7½ per cent. duty.		SALT. In Bengal . 3 Rs. 4 as. per maund duty. „ Bombay . 1 „ 8 „ „ „ „ Madras . 1 „ 11 „ „ „ „ Brit. Burmah 3 „ „ „				SILK (Manufactured.) 5 per cent. duty.*	
	Value in Rupees.		Value in Rupees.		Quantities in cwts.		Value in Rupees.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	36,750	72,375	—	1,269	5,787	—	7,876	—	1,922	—
Africa	—	39,600	—	—	—	1,087	—	1,480	—	1,40,801
America	10,000	—	—	—	—	—	—	—	—	—
Australia	—	—	—	—	—	—	—	—	—	—
Belgium	—	—	—	—	—	—	—	—	—	—
Bourbon	—	—	—	—	—	946	—	1,288	—	—
Ceylon	5,270	32,250	—	3,166	3,563	—	4,850	—	1,277	4,238
China	1,01,925	1,67,975	—	—	—	—	—	—	20,59,364	16,73,719
Denmark	—	—	—	—	—	—	—	—	—	—
France	15,477	—	—	—	38,427	123,361	52,304	1,67,993	2,90,736	5,83,711
Germany	—	—	—	—	42,215	24,301	85,492	21,555	—	—
Gibraltar	—	—	—	—	—	—	—	—	—	—
Holland	—	—	—	—	—	—	—	—	—	—
Hong Kong	—	—	—	—	—	—	—	—	1,00,431	51,535
Japan	—	—	—	—	—	—	—	—	—	—
Java	—	—	—	—	—	—	—	—	—	—
Junkseylon	—	—	—	—	—	—	—	—	—	—
Laccadives and Maldives	—	—	—	—	—	—	—	—	—	—
Mauritius	—	—	—	—	—	—	—	—	—	—
Mediterranean Ports	—	4,000	—	—	40,358	137,797	54,933	1,87,558	3,05,701	3,83,710
Nicobars	—	—	—	—	—	—	—	—	—	—
Persian Gulf	14,02,350	13,49,880	—	—	49,134	205,217	67,597	279,726	12,978	15,697
Portugal	—	—	—	—	—	8,668	—	11,798	—	—
Red Sea	4,250	21,200	—	—	708,323	347,347	9,63,662	4,72,781	—	—
Russia	—	—	—	—	—	—	—	—	—	—
Siam	—	—	—	—	—	—	—	—	—	—
Sonmiyani and Mekran	—	—	—	—	—	—	—	—	—	—
Spain	—	—	—	—	—	19,087	—	25,980	—	—
Suez	12,008	12,644	3,677	—	—	—	—	—	3,53,346	4,44,048
Straits Settlements	94,459	55,083	—	—	—	—	—	—	61,319	87,162
Sumatra	—	—	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—	—	—
Turkey	—	—	—	—	—	—	—	—	—	—
United Kingdom	31,607	12,346	51,28,781	32,70,123	5,248,955	4,665,879	79,02,253	71,15,326	16,20,814	22,17,963
West Indian Islands	—	—	—	—	—	—	—	—	—	—
Other Countries	300	—	—	98	13	1,246	182	1,545	1,590	3,880
Total	17,14,396	17,67,353	51,32,458	32,74,656	6,136,775	5,534,936	91,39,149	82,87,030	48,09,478	56,06,464
Share of each Presidency, &c.:—										
Bengal	1,22,950	1,18,454	21,09,678	25,38,483	5,765,169	4,955,658	87,03,794	76,84,153	10,29,703	14,12,553
Bombay	15,86,373	16,30,474	23,71,275	3,45,417	1,706	1,486	6,009	4,329	24,67,031	24,81,913
British Burmah	—	502	—	—	369,328	577,786	428,948	[illegible]524	12,13,675	16,20,873
Madras	5,073	17,423	6,02,319	3,60,277	561	3	374	[illegible]	90,930	80,015
Sind	—	500	49,186	30,479	11	3	24	2	8,139	11,110

* The duty on Silk thread was raised to 7½ per cent. in 1872-3.

No. 6.—*cont.*

FOREIGN TRADE.

INDIAN IMPORTS.

Countries whence Imported.	SILK (Raw). 7½ per cent. duty.				SPIRITS. 3 Rs. per imperial gallon duty.				SUGAR, and other saccharine produce. 7½ per cent. duty.	
	Quantities in lbs.		Value in Rupees.		Quantities in Gallons.		Value in Rupees.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	—	—	—	—	—	—	—	—	—	—
Africa	—	—	—	—	—	—	—	—	—	1,138
America	—	—	—	—	—	—	—	—	—	—
Austria	—	—	—	—	—	—	—	—	—	—
Australia	—	—	—	—	—	—	—	—	—	—
Belgium	—	—	—	—	—	—	—	—	—	—
Bourbon	—	—	—	—	—	—	—	—	—	—
Cape of Good Hope	—	—	—	—	—	—	—	—	—	—
Ceylon	—	51,843	—	1,07,373	589	655	4,171	7,483	11,050	35,624
China	1,465,101	1,530,611	51,51,893	51,27,995	141	616	1,222	1,511	12,15,567	11,19,705
Denmark	—	—	—	—	646	—	3,640	—	—	—
France	—	—	—	—	168,948	142,697	14,18,758	11,24,830	—	—
Germany	—	—	—	—	2,345	16,955	11,159	70,185	—	—
Gibraltar	—	—	—	—	—	—	—	—	—	—
Holland	—	—	—	—	6,150	16,168	34,280	91,802	—	—
Hong Kong	13,518	41,762	23,751	71,494	—	636	—	2,895	—	—
Japan	—	—	—	—	—	—	—	—	—	—
Java	—	—	—	—	165	—	1,048	—	—	—
Junkseylon	—	—	—	—	—	—	—	—	—	—
Laccadives and Maldives	—	—	—	—	—	—	—	—	37,440	—
Mauritius	—	—	—	—	1,819	7,601	8,506	10,955	53,52,669	28,34,751
Mediterranean Ports	—	309	—	1,545	51,669	38,667	4,72,325	3,47,119	—	3,709
Nicobars	—	—	—	—	—	—	—	—	—	—
Persian Gulf	26,943	48,944	1,34,771	2,44,729	—	—	—	—	2,543	—
Red Sea	—	—	—	—	—	—	—	—	—	—
Russia	—	—	—	—	—	—	—	—	—	—
Siam	1,305	—	5,280	—	—	—	—	—	8,043	—
Sonmiyani and Mekran	—	—	—	—	—	—	—	—	—	—
Spain	—	—	—	—	—	—	—	—	—	—
Suez	259,411	9,564	10,56,333	38,790	1,294	3,906	10,762	24,938	—	—
Straits Settlements	18,090	234,499	61,433	9,41,546	21,741	34,819	1,35,207	1,79,576	4,59,428	3,76,387
Sumatra	—	—	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	—	—	—	—	—	—
Turkey	—	—	—	—	—	—	—	—	—	—
United Kingdom	15,095	12,774	82,065	60,086	415,681	460,447	35,00,488	36,74,684	7,767	6,308
West India Islands	—	—	—	—	231	—	1,770	—	—	—
Other Countries	128	604	420	1,244	207	442	1,517	2,860	3,278	4,166
Total	1,799,591	1,930,910	65,15,946	65,94,802	671,626	723,609	56,04,853	55,38,838	70,97,785	44,01,461
Share of each Presidency, &c.:										
Bengal	1[illegible]1	41,855	23,791	71,750	256,222	285,269	22,10,738	23,67,041	3,967	1,780
Bombay	[illegible],661	1,736,659	59,55,625	59,10,268	264,537	228,864	20,92,122	15,72,277	68,53,984	41,19,246
British Burmah	26,732	149,194	5,09,436	5,97,039	51,720	91,157	3,58,659	5,15,173	1,69,697	2,43,654
Madras	2,040	264	13,901	1,056	75,043	88,440	6,76,917	7,60,803	70,081	36,598
Sind	2,637	2,938	13,193	14,689	24,104	29,879	2,66,417	3,23,544	56	183

No. 6.—*cont.*

FOREIGN TRADE.

Indian Imports.

Countries whence Imported.	TEA. 7½ per cent. duty. Quantities in lbs. and value in Rupees.*		TOBACCO, and articles used in consumption of, 10 per cent. duty (7½ per cent. on pipes.) Value in Rupees.		WINES and LIQUEURS. From 1 to 1½ Rs. per imperial gallon duty. Quantities in gallons.		Value in Rupees.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	—	—	6,570	—	—	103	—	1,332
Africa	—	—	9,626	26,659	—	546	—	1,972
America	—	—	91,809	45,633	165	—	1,130	—
Austria	—	—	—	—	—	97	—	1,160
Australia	—	—	6,906	—	846	6,015	5,839	36,730
Belgium	—	—	—	—	—	—	—	—
Bourbon	—	—	—	—	—	236	—	1,533
Cape of Good Hope	—	—	—	—	188	—	1,195	—
Ceylon	71,743	1,52,649	50,467	57,196	469	661	3,442	5,888
China	11,99,380	14,44,078	24,434	20,616	—	499	—	4,842
Denmark	—	—	—	—	—	—	—	—
France	—	—	—	2,148	116,612	83,709	7,84,545	6,15,644
Germany	—	—	—	—	2,234	7,233	12,331	40,823
Gibraltar	—	—	—	—	1,312	1,939	9,996	17,816
Holland	—	—	1,745	—	3,105	1,653	14,962	10,835
Hong Kong	4,37,907	5,73,739	—	61,833	—	—	—	—
Japan	—	—	—	—	—	—	—	—
Java	—	—	—	—	—	—	—	—
Junkseylon	—	—	—	—	—	—	—	—
Laccadives and Maldives	—	—	—	—	—	—	—	—
Mauritius	—	—	—	—	1,085	785	6,066	4,184
Mediterranean Ports	—	—	4,990	3,916	20,659	26,688	1,26,275	1,55,031
Nicobars	—	—	—	—	—	—	—	—
Persian Gulf	—	2,743	—	—	—	—	—	—
Red Sea	—	—	—	—	—	—	—	—
Russia	—	—	—	—	—	—	—	—
Siam	—	—	—	—	—	—	—	—
Sonmiyani and Mekran	—	—	—	—	—	—	—	—
Spain	—	—	—	—	—	—	—	—
Suez	2,029	1,301	50,777	28,615	8,459	10,896	52,444	70,453
Straits Settlements	1,52,828	1,78,524	2,00,840	1,54,370	2,143	1,425	12,087	7,456
Sumatra	—	—	—	—	—	—	—	—
Switzerland	—	—	—	—	1,303	—	10,350	—
Turkey	—	—	—	—	—	—	—	—
United Kingdom	1,60,119	1,10,633	4,30,813	3,73,850	408,614	449,679	39,02,754 †& 10,895	41,14,037
West Indian Islands	—	—	—	—	—	—	—	—
Other Countries	1,123	2,094	4,785	5,918	54	667	3,473 †and 45	3,114
Total	20,25,129	24,65,761	9,60,434	7,80,754	567,73.	592,831	49,46,889 & 10,940†	50,92,850
Share of each Presidency, &c.:								
Bengal	5,25,594	6,62,895	5,92,251	4,55,801	2,52,737	258,566	22,[illegible]0,958‡	23,51,662
Bombay	12,37,655	15,90,822	2,45,827	1,90,320	1,82,388	190,718	14,30,[illegible]27‡	14,28,363
British Burmah	77,610	91,051	36,865	39,928	22,160	26,227	1,70,538‡	2,08,332
Madras	1,83,020	1,20,867	81,618	85,328	95,171	102,807	8,72,947‡	9,42,619
Sind	1,250	126	3,873	9,377	15,281	14,513	1,82,619‡	1,61,874

* The value in Rupees of the tea imported in 1871-2 and 1872-3 was exactly the same as the quantity in lbs.; each lot being valued at one Rupee per lb.

† Quantity not stated. ‡ Exclusive of quantity of which value is not stated.

No. 6.—*cont.*

FOREIGN TRADE.

Indian Imports.

Countries whence Imported.	WOOLLEN GOODS. 5 and 7½ per cent. duty.		WOOL (Raw). Free.				Total value in Rupees of Indian Imports from each country.	
	Value in Rupees.		Quantities in lbs.		Value in Rupees.			
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
Aden	—	—	—	—	—	—	7,26,871	6,78,409
Africa	—	4,100	—	—	—	—	18,13,830	19,85,158
America	—	—	—	—	—	—	7,31,771	6,25,319
Austria	—	—	—	—	—	—	—	13,101
Australia	4,000	—	—	—	—	—	26,54,527	8,91,375
Belgium	—	—	—	—	—	—	—	—
Bourbon	—	—	—	—	—	—	—	12,438
Cape of Good Hope	—	—	—	—	—	—	—	—
Ceylon	1,881	—	—	—	—	—	47,29,784	48,24,536
China	2,269	—	—	—	—	—	1,12,69,686	1,17,88,397
Denmark	—	—	—	—	—	—	—	1,936
France	12,797	4,934	—	—	—	—	34,14,973	35,94,426
Germany	—	—	—	—	—	—	3,35,010	4,74,940
Gibraltar	—	—	—	—	—	—	—	18,033
Holland	—	—	—	—	—	—	1,12,522	1,16,369
Hong Kong	—	—	—	—	—	—	23,16,444	17,63,320
Japan	—	—	—	—	—	—	1,10,481	2,14,355
Java	—	—	—	—	—	—	—	8,000
Junkseylon	—	—	—	—	—	—	56,025	27,687
Laccadives and Maldives	—	—	—	—	—	—	6,82,217	5,07,112
Mauritius	—	—	—	—	—	—	54,05,321	28,88,668
Mediterranean Ports	87,970	56,958	—	—	—	—	28,42,576	29,78,931
Nicobars	—	—	—	—	—	—	—	3,950
Persian Gulf	14,533	22,523	891,162	1,123,228	2,69,340	3,58,347	52,21,092	65,13,875
Red Sea	—	—	55,160	64,904	9,690	17,176	17,71,916	13,16,396
Russia	—	—	—	—	—	—	—	1,355
Siam	—	—	—	—	—	—	—	4,859
Sonmiyani and Mekran	—	—	564,136	507,484	1,43,780	1,32,830	4,01,236	2,59,107
Spain	—	—	—	—	—	—	—	27,230
Suez	7,15,394	7,11,101	—	14,616	—	6,570	1,94,90,060	1,64,87,811
Straits Settlements	90,170	69,245	—	—	—	—	75,17,954	66,28,151
Sumatra	—	—	—	—	—	—	2,78,919	2,37,908
Switzerland	—	—	—	—	—	—	—	11,549
Turkey	—	—	—	—	—	—	73,049	33,343
United Kingdom	42,07,411	63,20,260	—	21,641	—	11,632	23,87,99,409	24,76,56,631
West Indian Islands	—	—	—	—	—	—	—	1,155
Other Countries	5,511	6,178	953	2,011	609	498	81,801	9,784
Total	51,41,936	71,95,299	1,911,411	1,733,884	4,23,419	5,27,053	31,08,37,474	31,26,05,614
Share of each Presidency, &c.:—								
Bengal	36,97,514	44,72,166	—	—	—	—	14,95,53,921	15,39,61,897
Bombay	17,33,537	20,82,833	1,175,223	1,441,777	3,35,838	4,55,216	10,43,20,582	10,56,32,957
British Burmah	4,51,930	4,03,491	20	—	50	—	1,39,12,171	1,68,04,250
Madras	2,37,730	2,18,371	296	535	429	466	3,12,95,784	3,29,64,013
Sind	21,225	18,438	335,872	291,572	87,102	71,371	39,10,787	32,42,497

No. 7.

FOREIGN TRADE.

Imports and Exports of Gold and Silver Bullion and Specie for 1871-2 and 1872-3.

Countries whence Imported.	IMPORTS.					
	Gold.		Silver.		Total of Gold and Silver.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Aden	2,68,744	2,95,375	6,18,678	4,63,248	8,87,422	7,58,623
African Coast	72,675	4,87,050	1,93,730	1,60,965	2,66,405	6,48,015
Arabia	18,480	—	21,975	—	40,455	—
Australia	30,81,074	36,64,728	176	—	30,81,250	36,64,728
Bourbon	3,77,387	7,00,000	—	—	3,77,387	7,00,000
Ceylon	34,91,903	23,56,650	26,54,923	18,44,765	61,46,826	42,01,415
China (including Hong Kong)	1,33,17,463	86,09,683	1,32,41,409	16,12,730	2,65,58,872	1,02,22,413
France	1,33,332	77,057	20,03,709	1,11,513	21,37,041	1,88,570
Japan	—	—	57,000	45,700	57,000	45,700
Mauritius	1,57,569	1,13,581	63,153	—	2,20,722	1,13,581
Penang and Malacca	21,150	10,580	66,865	5,625	88,015	16,205
Persian Gulf	2,78,916	4,31,441	30,35,393	18,05,608	33,14,309	22,37,049
Red Sea	9,06,028	14,79,855	12,24,971	14,67,565	21,30,999	29,47,420
Siam	—	—	1,24,678	1,01,390	1,24,678	1,01,390
Singapore	2,02,102	4,29,708	10,33,039	5,93,041	12,35,141	10,22,749
United Kingdom (including Suez).	1,34,06,956	75,18,174	5,56,08,153	1,10,73,288	6,90,15,109	1,85,91,462
Other Countries	4,000	49,830	52,498	56,700	56,498	1,06,530
Total	3,57,37,779	2,62,23,712	8,00,00,350	1,93,42,138	11,57,38,129	4,55,65,850

Countries whither Exported.	EXPORTS.					
	Gold.		Silver.		Total of Gold and Silver.	
	1871-2.	1872-3.	1871-2.	1872-3.	1871-2.	1872-3.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Aden	2,450	—	7,86,625	51,000	7,89,075	51,000
Africa	—	—	—	—	—	—
Arabia	—	—	—	—	—	—
Australia	—	—	—	—	—	—
Bourbon	—	—	—	—	—	—
Ceylon	6,000	5,02,000	75,96,240	74,95,000	76,02,240	79,97,000
China	—	20,066	13,43,350	11,97,320	13,43,350	12,17,386
France	—	5,500	6,425	3,700	6,425	9,200
Japan	—	—	—	—	—	—
Mauritius	—	—	10,33,000	1,00,000	10,33,000	1,00,000
Penang and Malacca	—	3,100	37,675	1,10,403	37,675	1,13,503
Persian Gulf	73,250	1,02,025	14,31,030	17,75,391	15,04,280	18,77,416
Red Sea	—	2,650	90,050	1,59,485	90,050	1,62,135
Siam	—	—	—	3,000	—	3,000
Singapore	1,000	1,01,350	7,80,208	12,56,065	7,81,208	13,57,415
United Kingdom (including Suez).	340	1,220	15,63,632	17,780	15,63,972	19,000
Other countries	1,300	52,175	8,350	21,560	9,650	73,735
Total	84,340	7,90,086	1,46,76,585	1,21,90,704	1,47,60,925	1,29,80,790

No. 8.

FOREIGN TRADE.

Number and Tonnage of Vessels.

ENTERED.

Whence Arrived.	1871-2.						1872-3.					
	With Cargoes.		In Ballast.		Total.		With Cargoes.		In Ballast.		Total.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
Aden	14	12,834	56	63,222	70	76,056	16	11,440	63	65,119	79	76,559
Australia	37	34,985	9	9,395	46	44,380	31	33,556	12	12,450	43	46,006
Cape of Good Hope	3	995	5	3,404	8	4,399	8	5,382	18	8,006	26	13,388
Ceylon	1,198	130,715	2,002	224,548	3,200	355,263	1,220	131,273	1,938	215,278	3,158	346,551
Hong Kong	28	29,449	11	8,558	39	38,007	28	30,998	10	8,296	38	39,294
Mauritius	46	30,968	46	30,621	92	61,589	34	21,004	78	66,940	112	87,944
Nicobars	—	—	—	—	—	—	1	160	—	—	1	160
Straits Settlements	297	113,154	95	50,542	392	163,696	275	107,044	79	52,212	354	159,256
United Kingdom	925	1,014,173	21	17,747	946	1,031,920	841	968,052	33	25,495	874	993,547
Other Possessions	2	2,267	5	3,387	7	5,654	—	—	3	1,872	3	1,872
Total of British Possessions	2,550	1,369,540	2,250	411,424	4,800	1,780,964	2,454	1,308,909	2,234	455,668	4,688	1,764,577
African Coast	60	8,119	1	400	61	8,519	47	8,491	5	2,372	52	10,863
America, South & Central	7	5,036	60	44,028	67	49,064	8	6,560	160	122,011	168	128,571
Bourbon	3	720	11	5,435	14	6,155	2	723	29	14,556	31	15,279
China	30	37,430	4	1,408	34	38,838	32	44,430	3	1,583	35	46,013
France	23	12,757	3	1,895	26	14,652	31	19,669	5	2,533	36	22,202
Germany	9	7,084	23	15,725	32	22,809	12	6,955	18	12,329	30	19,284
Holland	2	1,002	1	598	3	1,600	1	399	8	5,309	9	5,708
Java	—	—	4	2,640	4	2,640	1	795	2	1,222	3	2,017
Red Sea & Persian Gulf	505	131,026	45	12,521	550	143,547	519	133,873	13	6,875	532	140,748
Siam	14	938	13	959	27	1,897	6	389	31	2,285	37	2,674
Spain	—	—	—	—	—	—	1	954	—	—	1	954
Suez	85	125,946	2	1,633	87	127,579	74	113,194	12	9,029	86	122,223
Sumatra	19	4,215	—	—	19	4,215	19	4,610	—	—	19	4,610
United States	25	24,303	6	6,851	31	31,154	15	16,445	7	8,319	22	24,764
Other Countries	336	34,248	47	14,872	383	49,120	287	41,943	59	19,099	346	61,042
Total of Foreign Countries	1,118	392,824	220	108,965	1,338	501,789	1,055	399,430	352	207,522	1,407	606,952
Grand Total	3,668	1,762,364	2,470	520,389	6,138	2,282,753	3,509	1,708,339	2,586	663,190	6,095	2,371,529

Nationality of Above.

American	48	51,383	24	26,169	72	77,552	39	41,629	25	28,551	64	70,180
Arab	277	37,903	9	1,052	286	38,955	273	35,573	6	530	279	36,103
Austrian	11	9,442	1	640	12	10,082	19	17,253	8	6,565	27	23,818
Belgian	2	1,662	1	1,047	3	2,709	1	1,047	—	—	1	1,047
British	1,400	1,370,808	447	249,954	1,847	1,620,762	1,276	1,303,184	513	333,378	1,789	1,636,562
British Indian	1,714	185,199	1,804	152,086	3,518	337,285	1,611	192,059	1,725	132,219	3,336	324,278
Danish	—	—	2	853	2	853	1	1,095	2	1,390	3	2,485
Dutch	8	2,856	5	2,730	13	5,586	4	1,715	7	5,293	11	7,008
French	74	45,076	33	14,056	107	59,132	83	49,685	67	33,787	150	83,472
German	24	17,370	44	25,972	68	43,342	16	8,053	46	27,165	62	35,218
Italian	31	22,251	26	16,586	57	38,837	39	27,319	97	58,160	136	85,479
Norwegian	9	6,085	19	12,093	28	18,178	10	8,427	31	19,396	41	27,823
Portuguese	13	1,481	—	—	13	1,481	14	2,997	—	—	14	2,997
Russian	6	5,193	10	7,220	16	12,413	6	5,508	10	6,857	16	12,365
Spanish	—	—	1	482	1	482	4	2,090	3	1,809	7	3,899
Swedish	2	1,057	13	7,347	15	8,404	2	1,366	14	6,848	16	8,214
Siamese	8	1,408	5	1,418	13	2,826	13	1,912	—	—	13	1,912
Other Nationalities	41	3,190	26	684	67	3,874	98	7,427	32	1,242	130	8,669

No. 8—*cont.*

FOREIGN TRADE.

NUMBER AND TONNAGE OF VESSELS.

CLEARED.

Whence Arrived.	1871-2.						1872-3.					
	With Cargoes.		In Ballast.		TOTAL.		With Cargoes.		In Ballast.		TOTAL.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
Aden	29	6,108	1	189	30	6,297	44	9,035	—	—	44	9,035
Australia	19	10,413	1	1,232	20	11,645	20	20,258	1	1,232	21	21,490
British West Indies	—	—	—	—	—	—	2	1,582	—	—	2	1,582
Ceylon	2,421	2,553,48	860	81,914	3,281	3,37,262	2,650	2,49,907	687	69,548	3,337	3,19,455
Cape of Good Hope	3	1,002	—	—	3	1,002	12	4,841	—	—	12	4,841
Hong Kong	55	36,051	2	83	57	36,134	43	44,685	—	—	43	44,685
Mauritius	111	71,116	2	1,656	113	72,772	176	1,19,943	1	734	177	1,20,677
Nicobars	5	1,310	—	—	5	1,310	5	1,360	—	—	5	1,360
Straits Settlements	381	1,29,846	4	4,899	385	1,34,745	338	1,25,126	3	1,383	341	1,26,509
United Kingdom	1,081	10,83,339	3	3,413	1,084	10,86,752	1,093	10,92,094	12	15,623	1,105	11,07,717
Other British Settlements	8	6,841	—	—	8	6,841	17	13,175	—	—	17	13,175
TOTAL OF BRITISH POSSESSIONS	4,113	16,01,374	873	93,386	4,986	16,94,760	4,400	16,82,006	704	88,520	5,104	17,70,526
African Coast	61	8,721	1	335	62	9,056	59	8,716	—	—	59	8,716
America, United States	104	1,17,956	4	4,591	108	1,22,547	103	1,21,189	—	—	103	1,21,189
America, South & Central	28	23,690	—	—	28	23,690	39	37,003	1	1,042	40	38,045
Bourbon	23	10,421	—	—	23	10,421	18	8,899	—	—	18	8,899
China	43	50,139	1	359	44	50,498	36	48,733	—	—	36	48,733
Denmark	2	1,414	—	—	2	1,414	1	457	—	—	1	457
France	153	95,648	1	397	154	96,045	104	58,565	—	—	104	58,565
Germany	21	14,657	—	—	21	14,657	17	11,724	—	—	17	11,724
Holland	11	9,294	—	—	11	9,294	8	4,164	—	—	8	4,164
Java	5	3,450	2	1,896	7	5,346	9	7,348	4	3,525	13	10,873
Red Sea & Persian Gulf	556	1,43,189	7	1,580	563	1,44,769	425	1,22,162	23	3,847	448	1,26,009
Siam	17	1,172	—	—	17	1,172	32	6,597	—	—	32	6,597
Spain	7	4,015	—	—	7	4,015	3	2,387	—	—	3	2,387
Suez	80	1,23,050	—	—	80	1,23,050	80	1,20,995	—	—	80	1,20,995
Sumatra	7	1,409	—	—	7	1,409	7	1,307	—	—	7	1,307
Other Countries	230	49,415	51	1,686	281	51,101	287	45,511	11	3,754	298	49,265
TOTAL OF FOREIGN COUNTRIES	1,348	6,57,640	67	10,844	1,415	6,68,484	1,228	6,05,757	39	12,168	1,267	6,17,925
GRAND TOTAL	5,461	22,59,014	940	1,04,230	6,401	23,63,244	5,628	22,87,763	743	1,00,688	6,371	23,88,451

NATIONALITY OF ABOVE.

American	59	62,643	2	3,047	61	65,690	62	68,692	3	3,159	65	71,851
Arab	299	44,616	2	258	301	44,874	286	42,851	3	273	289	43,124
Austrian	13	9,866	—	—	13	9,866	24	21,785	—	—	24	21,785
Belgian	4	3,207	—	—	4	3,207	1	1,047	—	—	1	1,047
British	1,859	1,627,882	338	68,399	2,197	1,696,281	1,667	1,570,379	144	59,939	1,811	1,630,318
British Indian	2,780	296,304	584	31,624	3,364	327,928	2,989	280,819	543	34,551	3,532	315,370
Danish	1	498	—	—	1	498	2	1,390	—	—	2	1,390
Dutch	10	4,883	—	—	10	4,883	12	8,268	—	—	12	8,268
French	194	93,661	1	387	195	94,048	227	118,912	1	838	228	119,750
German	62	38,466	—	—	62	38,466	61	35,522	—	—	61	35,522
Italian	48	32,378	—	—	48	32,378	128	79,752	1	881	129	80,633
Norwegian	25	15,829	—	—	25	15,829	32	19,106	1	528	33	19,634
Portuguese	11	1,827	—	—	11	1,827	12	2,684	1	20	13	2,704
Russian	13	10,772	—	—	13	10,772	18	14,419	—	—	18	14,419
Spanish	2	950	—	—	2	950	7	3,910	—	—	7	3,910
Swedish	10	5,829	1	371	11	6,200	13	7,707	—	—	13	7,707
Siamese	9	1,678	—	—	9	1,678	14	1,956	—	—	14	1,956
Other Nationalities	62	7,725	12	144	74	7,869	73	8,564	46	499	119	9,063

Note.—The average tonnage of each vessel engaged in the Foreign Trade of India was, during the year 1871-2, 370 tons, and during the year 1872-3, 381 tons.

No. 9.

COASTING TRADE.

EXPORTS.

Whither Exported.	APPAREL.		COCOANUTS, Shells, Kernels, and Copra.		COFFEE.		COIR and Manufactures of.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	41,150	27,748	3,15,618	3,33,996	73,441	62,087	1,09,747	1,08,406
Bombay	83,295	1,12,684	27,05,862	24,61,174	8,96,196	3,60,026	3,83,554	5,89,373
British Burmah	4,36,301	6,01,647	18,628	—	5,602	14,603	30,614	43,001
Damaun	—	—	—	—	—	—	—	—
Diu	—	—	—	—	—	—	—	—
Gujrát	—	—	—	—	38	—	—	—
Goa	13,291	20,989	1,539	9,193	52	1,060	25,554	19,603
Kach	3	50	1,03,294	1,31,134	266	4,009	29,422	52,732
Karikal	—	—	—	—	140	—	—	—
Madras	3,93,626	3,68,473	1,338	1,354	6,690	5,121	875	4,958
Mahe	—	—	18	—	—	—	—	—
Pondicherry	4,926	5,455	—	—	254	56	879	6,211
Sind	1,75,898	1,66,062	4,16,997	3,30,665	15,728	19,978	19,197	28,725
Travancore	118	—	—	—	—	—	3,120	6,141
TOTAL	11,48,608	13,03,108	35,63,294	32,97,214	9,98,407	4,66,940	6,02,962	8,59,150

Whither Exported.	COTTON, Manufactures of.		COTTON, Raw.		FRUIT and VEGETABLES.		GRAIN and PULSE	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	8,68,488	10,52,603	3,58,209	5,97,129	75,455	60,967	25,140	41,148
Bombay	9,11,545	7,51,735	21,78,100	13,56,019	7,58,733	2,05,541	1,24,45,211	1,10,05,349
British Burmah	42,91,584	51,81,876	—	27,633	1,72,928	1,41,750	1,10,878	1,51,909
Damaun	—	—	—	—	—	—	—	—
Diu	—	—	—	—	—	—	—	—
Gujrát	—	—	—	—	43	—	2,219	—
Goa	2,56,789	2,14,931	—	154	9,309	6,027	5,18,602	5,54,870
Kach	—	—	—	—	192	514	1,99,599	1,01,454
Karikal	—	—	—	—	135	420	—	—
Madras	1,01,35,177	95,45,607	1,425	2,774	1,43,907	1,57,006	35,39,629	34,16,930
Mahe	—	—	—	—	—	—	—	—
Pondicherry	8,54,614	6,01,115	50,000	1,32,578	55	102	1,29,368	1,03,132
Sind	70,05,496	68,82,324	100	—	33,716	30,286	1,32,127	1,39,995
Travancore	2,631	828	—	—	3,663	208	34,344	91,069
TOTAL	2,42,26,324	2,42,30,919	25,87,834	21,16,287	11,98,136	6,02,821	1,60,43,117	1,56,05,856

Whither Exported.	HIDES and SKINS.		INDIGO.		JUTE and Manufactures of.		METALS and Manufactures of.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	6,82,456	14,10,629	1,30,501	2,788	49,737	44,032	2,78,842	5,09,061
Bombay	6,38,032	6,47,852	10,98,714	8,33,640	25,57,149	31,33,076	2,25,290	3,21,565
British Burmah	70,492	75,774	280	473	21,37,486	35,58,549	12,81,721	14,36,589
Damaun	—	—	—	—	—	—	—	—
Diu	—	—	—	—	—	—	—	—
Gujrát	—	—	—	—	—	—	—	—
Goa	—	96	803	538	3,971	4,797	44,054	35,445
Kach	—	—	—	—	—	25	69	—
Karikal	—	—	—	—	60	—	85	1,484
Madras	16,776	1,35,273	445	317	10,13,243	8,27,008	17,86,650	18,15,542
Mahe	—	400	—	—	—	—	—	—
Pondicherry	250	2,073	1,223	2,704	25,836	28,500	12,798	2,936
Sind	5,182	1,39,178	—	850	1,46,186	2,63,305	6,99,827	7,89,212
Travancore	—	—	—	—	210	600	1,399	264
TOTAL	14,13,188	24,11,275	12,31,966	8,41,310	59,33,878	78,59,892	43,30,725	49,12,098

No. 9—*cont.*

COASTING TRADE.

EXPORTS.

Whither Exported.	OILS, Vegetable and Mineral.		PROVISIONS and OILMAN'S STORES.		SALT.		SEEDS.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	133 890	4,48,446	46,953	26,846	5,44,545	16,02,437	12,10,754	10,14,578
Bombay	2,856,698	30,87,665	511,571	6,20,392	—	534	7,92,946	6,85,120
British Burmah	333,955	3,66,257	593,990	6,76,317	483	2,448	51,900	72,554
Damaun	352	—	—	—	—	—	—	—
Diu	—	—	—	—	—	—	—	—
Gujrát	—	—	—	—	—	—	48	—
Goa	18,130	5,352	6,678	16,235	—	—	10,363	7,347
Kach	18,696	26,171	893	7,960	—	—	39,876	11,491
Karikal	—	—	—	—	—	—	—	—
Madras	26,808	38,246	62,716	71,769	21,11,063	27,61,085	2,59,276	2,89,572
Mahe	—	—	2,422	3,076	—	—	—	621
Pondicherry	18,196	22,489	5,801	1,267	—	—	12,036	10,103
Sind	75,191	69,892	78,996	65,891	—	—	49,938	26,734
Travancore	26,783	28,314	374	924	—	—	2,020	—
TOTAL	3,508,698	40,92,832	13,10,394	14,90,677	26,56,091	43,66,504	24,29,157	21,18,120

Whither Exported.	SILK, Raw and Manufactured.		SPICES.		SUGAR, and other Saccharine Matter.		TEA.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	—	16,963	4,58,062	8,91,328	8,349	8,133	2,480	1,48,855
Bombay	3,83,661	1,25,049	13,55,670	11,27,608	41,06,416	45,73,418	46,311	16,840
British Burmah	18,38,905	16,76,220	9,46,911	13,36,814	1,20,963	3,94,545	5,549	7,147
Damaun	—	—	—	—	—	—	—	—
Diu	—	—	—	—	70	—	—	—
Gujrát	—	—	7,779	—	—	—	—	—
Goa	12,897	7,055	10,497	4,281	45,471	44,512	4,663	7,658
Kache	—	—	1,16,788	1,77,773	38,326	21,656	—	—
Karikal	—	—	2,796	—	4,503	1,045	—	—
Madras	—	31,91,910	1,73,426	2,12,421	2,06,465	2,15,420	80,631	96,440
Mahe	28,48,925	—	10,500	12,581	—	—	—	—
Pondicherry	1,844	3,672	23,862	22,856	56,003	74,838	370	702
Sind	3,36,835	2,48,588	487,584	4,96,276	11,84,027	10,35,096	2,37,308	1,04,201
Travancore	—	—	234	5,417	8	—	28	36
TOTAL	54,38,932	52,69,457	35,94,109	42,87,355	57,70,601	63,68,663	3,77,340	3,81,879

Whither Exported.	TEAK TIMBER.		TOBACCO and Articles used in Consumption of.		WOOD and Manufactures of.		WOOL and Manufactures of.		Total value of all Articles exported coastwise.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	9,27,022	15,50,168	87,324	84,762	62,067	71,928	60,343	77,311	80,69,243	1,20,61,919
Bombay	13,89,330	15,08,299	1,26,462	92,938	6,16,790	5,67,244	53,81,975	52,22,013	4,39,90,968	4,06,81,725
British Burmah	—	—	13,03,442	9,11,900	19,287	20,488	2,88,814	6,67,297	1,52,78,080	1,91,45,553
Damaun	—	—	—	—	—	—	—	—	3,087	1,341
Diu	—	—	—	—	—	—	—	—	2,448	—
Gujrát	—	—	—	—	—	—	—	—	10,197	1,509
Goa	230	1,306	13,191	20,154	8,648	3,533	21,862	25,718	11,20,437	11,07,022
Kach	23,800	48,459	356	2,377	51,987	1,05,560	—	—	5,46,103	7,26,586
Karikal	—	—	—	—	248	1,603	—	—	8,207	5,602
Madras	2,95,411	5,44,596	14,807	18,459	2,08,582	2,65,121	2,66,082	2,29,142	2,45,54,743	2,61,79,559
Mahe	—	—	—	—	5,344	6,913	—	—	19,441	24,350
Pondicherry	2,900	5,100	1,908	1,986	31,967	74,775	2,592	1,219	12,77,555	11,19,936
Sind	23,224	75,733	41,269	35,328	60,710	47,471	1,31,846	1,23,689	1,[illegible]90,480	1,21,59,632
Travancore	—	—	18	7,527	2,848	15	—	—	[illegible]81,833	1,46,197
TOTAL	26,61,917	37,33,661	15,88,777	11,75,431	10,68,478	11,64,651	61,53,514	63,46,389	10,71,52,822	11,33,60,931

No. 10.

COASTING TRADE.

IMPORTS.

Whence Imported.	APPAREL.		COCOANUTS, Kernels and Shells.		COFFEE.		COTTON (Raw).	
	1872. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	5,68,057	5,57,282	58,511	1,09,020	3,324	5,006	8,526	20,992
Bombay	4,49,874	3,80,074	5,64,709	6,11,496	42,240	56,418	23,403	31,137
British Burmah	18,815	14,417	10,462	9,134	125	1,320	1,77,112	2,53,944
Damaun	—	—	—	—	—	—	—	—
Diu	—	—	—	—	—	—	—	—
Goa	62	18	4,90,257	6,40,965	624	952	47,030	15,200
Gujrát.	—	—	—	—	—	—	—	—
Kach	—	8	9	—	—	—	—	125
Karikal	1	—	388	—	—	—	—	—
Madras	81,104	54,677	48,02,171	42,37,117	8,29,258	3,65,142	3,05,843	3,93,795
Mahe	—	200	1,253	1,034	2,688	—	—	—
Pondicherry	6,986	2,206	449	2,314	—	—	40,629	15,000
Sind	10,103	35,925	—	26,090	820	150	15,10,676	7,71,460
Travancore	—	—	9,437	—	49,559	330	—	608
TOTAL	11,35,002	10,54,707	59,37,646	56,47,892	9,28,638	4,20,318	21,13,219	15,02,261

Whence Imported.	COTTON, Manufactures of.		GRAIN and PULSE.		HIDES and SKINS.		INDIGO.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	49,20,600	40,15,079	1,08,94,167	1,14,45,012	9,763	1,21,923	3,140	20,000
Bombay	1,17,75,112	1,34,83,944	3,31,249	3,91,681	7,315	1,56,608	—	160
British Burmah	2,26,176	2,68,262	7,15,190	13,04,208	63,855	65,862	440	525
Damaun	—	—	—	—	—	—	—	—
Diu	—	—	—	—	—	—	—	—
Goa	16,124	—	4,560	945	—	435	—	—
Gujrát	—	—	—	—	—	—	—	—
Kach	—	392	1,103	1,165	—	—	—	—
Karikal	1,386	—	81,974	2,333	—	—	—	—
Madras	7,34,774	7,47,705	7,27,242	5,76,950	4,87,884	17,04,805	8,02,191	3,847
Mahe	—	—	—	—	—	—	—	—
Pondicherry	55,242	65,775	50	5,633	18,077	17,883	—	—
Sind	86,762	83,026	8,96,955	12,55,043	3,98,514	4,39,206	11,16,400	2,25,650
Travancore	—	—	800	255	—	—	—	—
TOTAL	1,78,16,176	1,86,64,283	1,36,53,290	1,49,83,225	9,85,408	25,06,721	19,22,171	2,50,182

Whence Imported.	JUTE and Manufactures of.		METALS and Manufactures of.		OILS (Animal, Vegetable, and Mineral).		OPIUM.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	38,38,271	56,75,286	10,84,559	11,15,055	3,07,554	1,91,762	*3,26,070	2,11,020
Bombay	2,19,294	2,69,333	18,93,573	20,77,194	1,18,437	1,36,288	—	†20,000
British Burmah	12,450	1,102	2,21,362	1,34,736	2,22,940	3,12,753	—	—
Damaun	—	—	—	—	—	—	—	—
Diu	—	—	—	—	—	—	—	—
Goa	1,019	496	4,043	65,826	8,293	2,946	—	—
Gujrát	40	—	—	—	—	—	—	—
Kach	75	214	—	—	—	—	—	—
Karikal	—	2,275	227	95	—	—	—	—
Madras	46,999	31,365	38,562	1,65,852	26,71,204	30,78,196	—	—
Mahe	—	—	—	564	—	216	—	—
Pondicherry	—	608	845	1,155	141	21,253	—	—
Sind	25,532	25,637	65,998	23,316	8,870	5,475	—	—
Travancore	—	602	317	820	42,390	—	—	—
TOTAL	41,43,680	60,06,918	33,09,486	35,84,613	32,27,137	37,48,889	3,26,070	2,31,020

* All imported into British Burmah. † All imported into Sind.

No. 10.—*cont*

COASTING TRADE.

IMPORTS.

Whence Imported.	PROVISIONS and OILMAN'S STORES.		SALT.		SEEDS.		SILK and Manufactures of.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	1,47,679	1,76,685	567	15,009	68,651	1,05,208	28,19,691	31,02,972
Bombay	1,31,926	1,61,280	7,25,383	9,93,401	1,51,419	1,45,459	4,61,886	3,35,251
British Burmah	21,263	10,445	—	—	41,441	1,42,123	11,155	14,581
Damaun	—	—	7,876	—	—	—	—	—
Diu	—	—	2,094	7,914	—	—	—	—
Goa	2,03,217	2,44,479	1,65,708	1,22,155	60	7	—	—
Gujrát	—	—	—	—	—	—	—	—
Kach	130	—	7,435	9,033	100	158	—	—
Karikal	15	10	—	—	17	3	43	—
Madras	2,95,184	3,78,872	2,48,612	2,18,879	14,57,745	8,02,240	1,23,548	14,796
Mahe	3,943	6,817	—	—	—	—	—	—
Pondicherry	1,297	4,653	—	—	8,089	259	20	—
Sind	3,34,523	2,06,145	105,394	—	1,68,216	1,13,127	8,900	30,385
Travancore	361	356	—	—	117	—	—	—
TOTAL	11,39,138	11,89,742	12,63,069	13,66,391	18,95,855	13,08,584	34,25,243	34,97,985

Whence Imported.	SPICES.		SUGAR and other Saccharine Matter.		TEA.		TOBACCO and Articles used in the Consumption of	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	11,36,499	13,49,880	21,53,942	17,53,870	73,446	93,243	10,51,323	6,03,927
Bombay	9,76,951	8,59,079	12,76,948	11,66,196	2,04,142	1,34,779	75,746	56,307
British Burmah	60,293	41,109	473	633	1,86,360	3,40,513	17,381	18,666
Damaun	—	—	—	—	—	—	—	—
Diu	—	—	—	—	—	—	—	—
Goa	1,14,745	1,07,197	418	147	14	—	1	31
Gujrát	—	—	—	—	—	—	—	—
Kach	—	—	—	—	—	—	—	—
Karikal	223	1,936	49	39	—	—	—	5
Madras	13,41,456	17,67,529	4,96,057	41,217	40,832	1,634	4,25,823	4,44,522
Mahe	—	—	40	—	—	—	—	—
Pondicherry	—	1,786	108	73	—	—	167	312
Sind	3,798	1,14,311	1,129	2,934	—	—	60	1,203
Travancore	13,264	1,640	731	131	—	—	—	—
TOTAL	36,47,229	42,44,467	39,29,895	29,65,240	5,04,794	5,70,169	15,70,501	11,24,973

Whence Imported.	WOOD and Manufactures of.		WOOL and Manufactures of.		Total value of all Articles Imported Coastwise.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	28,605	36,325	4,59,858	7,88,339	3,19,68,297	3,39,67,909
Bombay	2,53,860	3,49,079	2,80,012	2,63,161	2,25,24,161	2,48,66,914
British Burmah	27,19,735	38,59,449	36,754	12,123	58,40,381	79,75,818
Damaun	—	—	—	—	7,876	—
Diu	—	—	—	—	2,094	7,914
Goa	18,716	25,646	153	765	18,50,919	21,06,572
Gujrát	—	—	—	—	40	—
Kach	331	3,738	—	255	55,521	21,022
Karikal	4,501	156	5	—	90,962	15,456
Madras	6,46,431	6,20,784	22,890	86,801	1,84,18,050	1,72,49,057
Mahe	56	51	—	—	10,117	20,721
Pondicherry	2,418	856	30	—	4,66,529	3,10,001
Sind	19,791	37,285	48,72,533	49,35,892	1,0[illegible]77,553	99,71,978
Travancore	69,908	51,276	—	—	2,56,967	1,02,115
TOTAL	37,64,352	49,84,645	56,72,235	60,87,336	9,18,69,467	9,66,15,477

No. 11.

COASTING TRADE.

Bullion and Specie.

IMPORTS.

GOLD.

	From British-Indian Ports.		From Indian Ports not British.		Total from all Ports.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	2,50,300	5,100	—	—	2,50,300	5,100
Bombay	11,066	1,925	1,300	—	12,366	1,925
British Burmah	10,09,248	5,66,075	—	—	10,09,248	5,66,075
Madras	11,44,381	8,19,461	20,118	23,711	11,64,499	8,43,172
Sind	37,575	15,710	—	—	37,575	15,710
Total	24,52,570	14,08,271	21,418	23,711	24,73,988	14,31,982

SILVER.

Bengal	74,91,578	42,43,960	—	—	74,91,578	42,43,960
Bombay	26,34,720	60,487	10,093	10,005	26,44,813	70,492
British Burmah	69,87,254	1,28,36,146	—	—	69,87,254	1,28,36,146
Madras	26,51,370	50,75,282	39,826	21,659	26,91,196	50,96,941
Sind	1,51,619	2,66,178	—	—	1,51,619	2,66,178
Total	1,99,16,541	2,24,82,053	49,919	31,664	1,99,66,460	2,25,13,717

EXPORTS.

GOLD.

	To British-Indian Ports.		To Indian Ports not British.		Total to all Ports.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	15,78,326	11,22,971	700	—	15,79,026	11,22,971
Bombay	9,99,696	5,78,465	—	5,000	9,99,696	5,83,465
British Burmah	49,245	4,000	—	—	49,245	4,000
Madras	4,55,376	61,500	—	—	4,55,376	61,500
Sind	—	—	—	—	—	—
Total	30,82,643	17,66,936	700	5,000	30,83,343	17,71,936

SILVER.

Bengal	86,83,769	68,49,550	—	—	86,83,769	68,49,550
Bombay	42,41,647	61,32,779	41,000	9,900	42,82,647	61,42,679
British Burmah	23,55,351	7,59,612	—	—	23,55,351	7,59,612
Madras	34,54,733	47,67,680	46,750	4,000	35,01,483	47,71,680
Sind	25,66,340	30,202	—	—	25,66,340	30,202
Total	2,13,01,840	1,85,39,823	87,750	13,900	2,13,89,590	1,85,53,723

TOTAL GOLD AND SILVER.

	IMPORTED.		EXPORTED.	
	1871-2. Rs.	1872-3. Rs.	1871-2. Rs.	1872-3. Rs.
Bengal	77,41,878	42,49,060	1,02,62,795	79,72,521
Bombay	26,57,179	72,417	52,82,343	67,26,144
British Burmah	79,96,502	1,34,02,221	24,04,596	7,63,612
Madras	38,55,695	59,40,113	39,56,859	48,33,180
Sind	1,89,194	2,81,888	25,66,340	30,202
Total	2,24,40,448	2,39,45,699	2,44,72,933	2,03,25,659

No. 12.

COASTING TRADE.—Vessels Entered and Cleared.

ENTERED.

	Bengal.		Bombay.		British Burmah.		Madras.		Sind.		Total.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
1871-2.												
British—												
With Cargoes	197	146,896	253	140,110	5	4,259	420	368,742	63	33,816	938	693,823
In Ballast	76	76,761	73	9,550	61	62,181	49	33,421	4	2,351	263	184,264
British Indian—												
With Cargoes	74	17,259	86	32,290	227	123,669	321	131,314	1	1,277	709	305,809
In Ballast	8	1,276	14	6,501	3	1,558	27	3,317	2	967	54	13,619
Foreign—												
With Cargoes	6	4,192	717	19,192	3	3,621	237	44,084	10	1,281	973	71,070
In Ballast	11	8,696	148	2,320	8	7,435	260	14,750	2	52	429	33,253
Native Craft—												
With Cargoes	130	15,698	5,441	200,798	107	23,193	2,266	116,073	468	31,290	8,412	387,052
In Ballast	24	2,733	361	3,247	12	2,381	1,629	49,484	1,267	43,428	3,293	101,273
Total—												
With Cargoes	407	184,045	6,497	392,390	342	153,442	3,244	660,213	542	67,664	11,032	1,457,754
In Ballast	119	89,446	596	21,618	84	73,555	1,965	100,972	1,275	46,798	4,039	332,409
Total of Cargoes and Ballast	526	273,511	7,093	414,008	426	226,997	5,209	761,185	1,817	114,462	15,071	1,790,163
1872-3.												
British—												
With Cargoes	208	174,796	198	152,541	50	35,679	446	420,640	58	32,733	960	816,389
In Ballast	63	58,490	62	11,329	87	92,037	39	30,257	4	1,857	255	193,970
British Indian—												
With Cargoes	67	21,685	77	25,033	161	105,290	269	120,073	—	—	574	272,081
In Ballast	5	1,361	11	9,364	24	23,178	30	3,276	—	—	70	37,179
Foreign—												
With Cargoes	13	7,303	849	26,929	1	687	297	54,569	9	867	1,169	90,355
In Ballast	37	20,728	178	2,459	8	6,968	250	16,089	7	804	480	47,048
Native Craft—												
With Cargoes	77	8,658	5,550	197,004	93	19,763	2,450	130,738	569	40,404	8,739	396,567
In Ballast	11	1,265	410	4,882	15	3,721	1,063	55,322	1,312	47,118	3,711	112,308
Total—												
With Cargoes	365	212,442	6,674	401,507	305	161,419	3,462	726,020	636	74,004	11,442	1,575,392
In Ballast	116	81,844	661	28,034	134	125,904	2,282	104,944	1,323	49,779	4,516	390,505
Total of Cargoes and Ballast	481	294,286	7,335	429,541	439	287,323	5,744	830,964	1,959	123,783	15,958	1,965,897

CLEARED.

1871-2.												
British—												
With Cargoes	216	163,656	234	98,166	24	22,533	558	494,905	64	33,039	1,096	812,299
In Ballast	7	8,660	260	162,321	5	5,006	41	42,757	5	4,391	318	223,135
British Indian—												
With Cargoes	97	23,939	25	15,455	225	122,608	276	121,195	—	—	623	283,197
In Ballast	—	—	21	16,163	4	2,498	58	8,554	1	1,277	84	28,492
Foreign—												
With Cargoes	12	8,759	376	13,474	5	3,455	368	21,128	20	1,810	781	48,626
In Ballast	—	—	422	25,709	—	—	51	4,356	4	178	477	30,243
Native Craft—												
With Cargoes	143	16,413	2,513	121,524	122	24,637	3,623	160,061	1,660	71,603	8,061	394,238
In Ballast	5	336	2,560	67,790	1	207	253	8,316	16	599	2,835	77,248
Total—												
With Cargoes	468	212,767	3,148	248,619	376	173,233	4,825	797,289	1,744	106,452	10,561	1,538,360
In Ballast	12	8,996	3,263	271,983	10	7,711	403	63,983	26	6,445	3,714	359,118
Total of Cargoes and Ballast	480	221,763	6,411	520,602	386	180,944	5,228	861,272	1,770	112,897	14,275	1,897,478
1872-3.												
British—												
With Cargoes	257	214,027	163	95,444	65	45,281	604	551,357	55	31,137	1,144	937,246
In Ballast	7	9,231	259	192,846	4	3,551	44	42,758	12	9,467	326	257,853
British Indian—												
With Cargoes	80	25,138	39	14,139	181	108,938	228	108,802	1	548	529	257,565
In Ballast	1	60	27	19,787	1	166	63	11,104	—	—	92	31,117
Foreign—												
With Cargoes	21	11,487	399	13,157	4	3,399	426	34,048	24	1,933	874	64,024
In Ballast	—	—	479	26,443	—	—	56	6,574	6	1,904	541	34,921
Native Craft—												
With Cargoes	102	11,870	2,652	133,485	126	26,175	4,033	172,219	1,832	85,626	8,745	429,375
In Ballast	4	473	2,612	62,633	—	—	304	7,889	40	1,866	2,960	72,861
Total—												
With Cargoes	460	262,522	3,253	256,225	376	183,793	5,291	866,426	1,912	119,244	11,292	1,688,210
In Ballast	12	9,764	3,377	301,709	5	3,717	467	68,325	58	13,237	3,919	396,752
Total of Cargoes and Ballast	472	272,286	6,630	557,934	381	187,510	5,758	934,751	1,970	132,481	15,211	2,084,962

Note.—The average tonnage of each vessel engaged in the Coasting Trade of India was, in 1871-2, 125 tons, and in 1872-3, 130 tons.

No. 13.

NUMBER OF EDUCATIONAL INSTITUTIONS AND OF SCHOLARS.

	UNIVERSITIES.			COLLEGES.		HIGH SCHOOLS.		MIDDLE-CLASS SCHOOLS.		LOWER-CLASS SCHOOLS.	
	Number.	Number of Candidates.	Number passed.	Number	Average daily attendance.	Number.	Average daily attendance.	Number.	Average daily attendance.	Number.	Average daily attendance.
BENGAL:											
Government	—	—	—	27	1,841	57	Not given	198	Not given	29	Not given
Private Aided	1	2,787	1,228	5	244	78	Not given	989	Not given	8,801	Not given
Private Unaided	—	—	—	—	—	44	Not given	193	Not given	3,630	Not given
MADRAS:											
Government											
Private Aided	1	1,530	611	13	—	52	—	562	—	6,046	—
Private Unaided											
NORTH-WEST PROVINCES:											
Government	—	—	—	7	675	12	2,298	583	26,182	3,288	87,356
Private Aided	—	—	—	3	34	—	—	—	—	—	—
Private Unaided	—	—	—	—	—	23	4,131	1,432	22,158	3,291	31,256
BOMBAY AND SIND:											
Government	—	—	—	6	614	19	2,855	124	9,702	3,463	132,680†
Private Aided	—	1,134	468	2	30	21	2,967	28	2,105	94	4,563
Private Unaided	—	—	—	—	—	1	16	24	1,353	209	5,855
PUNJAB:											
Government	—	—	—	3*	204	6	202	122	9,574	1,073	39,171
Private Aided	—	—	—	—	—	—	—	—	—	—	—
Private Unaided	—	—	—	—	—	—	—	—	—	—	—
OUDH:											
Government	—	—	—	—	—	9	2,222	77	7,695	781	25,038
Private Aided	—	—	—	1	600	1	161	12	1,341	17	347
Private Unaided											
CENTRAL PROVINCES:											
Government	—	—	—	—	—	1	66	48	1,500	751	26,000
Private Aided	—	—	—	—	—	3	70	17	1,069	860	16,733
Private Unaided											
BRITISH BURMAH:											
Government	—	—	—	—	—	—	—	6	362	—	—
Private Aided	—	—	—	—	—	—	—	13	1,268	—	—
Private Unaided	—	—	—	—	—	—	—	Not known		Not known	
CURG:											
Government	—	—	—	—	—	2	Not given	4	Not given	20	1,376
Private Aided	—	—	—	—	—	—	—	—	—	4	119
Private Unaided	—	—	—	—	—	—	—	—	—	29	526
MYSORE:											
Government	—	—	—	—	—	7	1,209	6	186	628	12,392
Private Aided	—	—	—	—	—	5	682	11	542	1,536	20,287
Private Unaided											
BERAR:											
Government	—	—	—	—	—	2	122	50	3,268	326	7,233
Private Aided	—	—	—	Not	given	Not	given	Not	given	Not	given
Private Unaided											

	GIRLS' SCHOOLS.		NORMAL SCHOOLS.		SPECIAL SCHOOLS.		Total number of Scholars on the rolls.	Proportion of Scholars to Population.	Proportion of average daily attendance to Population.
	Number.	Average daily attendance.	Number.	Average daily attendance.	Number.	Average daily attendance.			
BENGAL:									
Government	1	64	26	Not given	1‡	55	27,533		
Private Aided	244	Not given	17	Not given	—	—	285,649	1 to 163	No information
Private Unaided	30	Not given	1	Not given	—	—	91,764		
MADRAS:									
Government								—	—
Private Aided	186	—	17	—	—	—	—		
Private Unaided									
NORTH-WEST PROVINCES:									
Government	420	6,327	7	254	—	—	160,178		
Private Aided	—	—	—	—	3‖	Not given	20,136	1 to 157	No information
Private Unaided	376	4,730	3	66	—	—	15,441		
BOMBAY AND SIND:									
Government	Included in Boys' Schools		10	486	1**	14	193,093		
Private Aided	26	1,538	—	—	2	189	14,648	1 to 117	1 to 154
Private Unaided	40	750	1	6	4	44	10,725		
PUNJAB:									
Government	91	2,053	3	167	—	—	—	—	
Private Aided	—	—	—	—	—	—	—	—	—
Private Unaided	—	—	—	—	—	—	—	—	—
OUDH:									
Government	81	1,604	4	178	—	—	48,911	—	1 to 253
Private Aided	17	438	758	4,236††	—	—	—	—	—
Private Unaided									
CENTRAL PROVINCES:									
Government	91	1,722	7	191	—	—	47,757		
Private Aided	27	420	—	—	—	—	35,173	1 to 111	1 to 171
Private Unaided									
BRITISH BURMAH:									
Government	—	—	1	59	—	—	514	—	—
Private Aided	6	462	3	194	—	—	2,164	—	—
Private Unaided	Not known		—	—	—	—	Not known	—	—
CURG:									
Government	—	—	1	12	—	—	1,901		
Private Aided	—	—	—	—	—	—	119	1 to 66	Not given
Private Unaided	—	—	—	—	—	—	526		
MYSORE:									
Government	8	192	4	57	6	718	19,497		
Private Aided	38	1,759	—	—	1	72	24,975	1 to 113	1 to 132
Private Unaided									
BERAR:									
Government	25	457	1	29	—	—	Not given	—	1 to 140
Private Aided	Not given		Not given		Not given		Not given	Not given	Not given
Private Unaided									

* Including Lahor Medical School. † Including Pupils attending Night Schools. ‡ School of Art.
‖ European Female School. ** Sind Engineering School, Haidarabad. †† Indigenous Schools.

No. 14.

TABLE showing the DISTRIBUTION of the BENGAL, MADRAS, and BOMBAY ARMIES according to DIVISIONS and DISTRICTS.—(From the Returns of the Quarter-master Generals' Offices for March 1873.)

DIVISIONS.	INFANTRY.		CAVALRY.		Sappers and Miners.	Artillery.	TOTAL.		British Officers.	GRAND TOTAL.
	Native.	British.	Native.	British.			Native.	British.		
BENGAL.										
Army Head Quarters' Staff	—	—	—	—	Included in Infantry (Native and British).	—	—	—	23	23
Presidency District	4,662	2,611	144	—		440	4,806	3,060	177	8,043
Eastern Frontier District	4,836	—	—	—		—	4,836	—	62	4,898
Allahabad Division	2,820	2,813	1,140	—		796	3,960	3,609	206	7,775
Oudh Division	2,079	3,164	987	417		653	3,066	4,234	204	7,504
Sagar District	2,475	1,059	742	—		279	3,217	1,338	107	4,662
Gwalior District	2,104	1,568	598	—		496	2,702	2,064	108	4,874
Rohilkhand District	2,082	1,826	458	—		148	2,540	1,974	112	4,626
Mirat (Meerut) Division	3,511	3,722	389	993		747	3,900	5,462	273	9,635
Sirhind Division	1,409	2,516	87	504		560	1,496	3,580	160	5,236
Lahor Division	4,978	3,132	1,354	—		848	6,332	3,980	226	10,538
Rawal Pindi Division	4,290	3,897	1,346	960		818	5,636	5,675	288	11,599
Peshâwar District	3,639	2,497	1,361	—		427	5,000	2,924	188	8,112
Not in Division	—	111	323	—		—	323	111	11	445
TOTALS	38,885	28,916	8,929	2,874	—	6,221	47,814	38,011	2,145	87,970
Civil Force not under the orders of His Excellency the Commander-in-Chief.										
Viceroy's Body-guard	—	—	87	—	—	—	87	—	4	91
Rajputâna	2,919	—	1,472	—	—	—	4,391	—	42	4,433
Punjab Frontier Force	8,795	111	2,800	—	—	618	12,213	111	162	12,486
Resident's Escort, Nepaul	95	—	—	—	—	—	95	—	—	95
TOTALS	11,809	111	4,359	—	—	618	16,786	111	208	17,105
MADRAS.										
Centre District	2,980	769	—	—	—	619	2,980	1,388	101	4,469
Northern District	2,707	34	—	—	—	—	2,707	34	39	2,780
Southern District	3,140	171	—	—	—	152	3,140	323	55	3,518
Mysor Division	3,310	1,014	—	486	822	307	4,132	1,807	142	6,081
Malabar and Canara	2,105	874	—	—	—	78	2,105	952	65	3,122
Ceded Districts	1,416	928	337	—	—	164	1,753	1,092	75	2,920
Haidarabad Subsidiary Force	2,858	1,691	288	433	346	468	3,492	2,592	186	6,270
Nagpur Force	3,449	882	306	—	—	310	3,755	1,192	101	5,048
British Burmah Division	3,048	1,809	—	—	109	423	3,157	2,232	128	5,517
TOTALS	25,013	8,172	931	919	1,277	2,521	27,221	11,612	892	39,725
BOMBAY.										
Presidency District	1,838	268	30	—	—	255	1,868	523	35	2,426
Poona Division	4,664	2,365	885	168	395	643	5,932	3,188	198	9,318
Mau Division	3,347	1,867	481	326	—	535	3,828	2,728	140	6,696
Northern Division	5,332	903	484	—	—	352	5,816	1,255	113	7,184
Sind District	2,029	945	1,458	—	—	301	3,487	1,246	80	4,813
Belgaum District	2,718	972	76	—	—	156	2,794	1,128	70	3,992
Aden Force	791	633	100	—	96	178	987	811	45	1,843
TOTALS	20,719	7,953	3,514	494	491	2,420	24,712	10,879	681	36,272
MISCELLANEOUS FORCES OF OTHER GOVERNMENTS.										
Haidarabad Contingent	5,498	—	2,302	—	—	520	8,320	—	66	8,386
Mysor Sillahdar Horse	—	—	2,145	—	—	—	2,145	—	—	2,145
Nair Brigade	1,418	—	—	—	—	30	1,448	—	4	1,452
TOTALS	6,916	—	4,447	—	—	550	11,913	—	70	11,983
GRAND TOTALS	103,343	45,152	22,172	4,286	1,768	12,280	128,446	60,613	3,996	193,005

END OF STATISTICAL TABLES.

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EAST INDIA (PROGRESS AND CONDITION)

STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION

OF

INDIA

DURING THE YEAR 1873-74.

(PRESENTED PURSUANT TO ACT OF PARLIAMENT)

LONDON:
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STATEMENT

EXHIBITING THE

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DURING THE YEAR 1873–74.

I.

ADMINISTRATION AND LEGISLATION.

ADMINISTRATIVE CHANGES.

Sir William Muir's Lieutenant-Governorship closed with March 1874, and on the 9th of April he was succeeded in the North-West Provinces by Sir John Strachey. On the 21st January 1874, owing to the exigencies of the famine in Bengal, Sir Richard Temple was associated with Sir George Campbell (whom he succeeded in the following April), and was deputed to Behar with full powers to direct and control the relief operations. On the 6th of February Lieutenant-Colonel R. H. Keatinge was appointed Chief Commissioner of the newly-formed Province of Assam.

The last-named territory was detached from the Bengal Government, with the double object of relieving that Government and of strengthening the administration of Assam. The new Chief Commissionership includes, besides Assam Proper, the Naga Hills, the Khasi and Jynteah Hills, the Garo Hills, Goalpara, Cachar, and Sylhet,—the latter district having been added on 17th September 1874. The total area comprises some 54,000 square miles, with a population of about 4,150,000, and a gross revenue of about 525,000*l.*, which it is hoped will increase under firmer administration.

PARALLEL PROMOTION IN BENGAL CIVIL SERVICE.

A scheme was sanctioned by the Government of India in 1873 by which the District Judges and Additional Judges in Bengal are to be classified in two grades, fifteen on the salary of Rs. 2,500 a month, and the same number on Rs. 2,000 a month, instead of (as heretofore) twenty-seven Judges on Rs. 2,500, and three Additional Judges on Rs. 2,166. The object of this change was, by establishing parallel lines of promotion in the Executive and Judicial branches of the Covenanted Civil Service, to enable an officer to choose, at a comparatively early period of his service, the line which his inclination and abilities might lead him to prefer, and to obviate the necessity of transferring an officer from the Executive to the Judicial service merely because his legitimate claims to promotion cannot be overlooked.

PERMANENCY OF DISTRICT OFFICERS IN BENGAL.

This scheme of parallel promotion rendered possible the increased permanency of District Officers in their posts. During 1873–74 some changes in sub-divisions were unavoidably caused by the urgent requirements of the famine districts, but at the close of the year there were no less than twenty-five Magistrate-Collectors who had been in charge of their districts for a period of two years, while some had been in charge for a much longer period. The country derived the greatest benefit from this improved system.

BENGAL NATIVE CIVIL SERVICE.

At the examinations for admission into the Bengal Native Civil Service, from which the subordinate executive agency of the Presidency is now recruited, 385 candidates appeared, of whom 200 were passed, and were distributed over Bengal in various grades of appointments.

LEGISLATION.

Eighteen Acts of the Legislative Council of India received the assent of the Governor General during the official year ending 31st March 1874. Among them were Acts to provide for the appointment of Municipal Committees in the Central

Provinces, in the North-West Provinces and Oude, and in British Burmah; an Act empowering the Governor General in Council to prohibit or impose conditions on recruiting within British India for the service of any Foreign State; and an Act to consolidate and amend the law relating to appeals to the Privy Council. But the most important were the North-West Provinces Revenue and Rent Acts,* which will be referred to again in the chapter on Land Revenue.

The legislative business of the Bengal Council was comparatively light, owing to the great pressure of work occasioned by the famine. Seven Bills were passed; amongst them, one to provide the means for a complete register of births and deaths†; one to amend the law relating to embankments and watercourses, by which ample powers are given to collectors of Land Revenue to remove or alter existing embankments, to improve drainage, and to construct and open or shut sluices; and another to consolidate the law relating to emigration of labourers to Assam, Cachar, and Sylhet.

In Madras three Acts were passed, the object of one being to prevent the indiscriminate destruction of wild elephants.

Of six Acts passed by the Bombay Council the most important was the District Municipal Act, which will be noticed presently. Another was an Act to consolidate and amend the law relating to salt in the Bombay Presidency.

MUNICIPALITIES. The origin and constitution of municipalities were explained in the last Report. A brief glance will now be taken at their condition and progress during 1873–74, commencing with the capital cities of the three Presidencies.

Calcutta. In the Calcutta municipality, a marked feature in the administration of the year was the very active interest taken by the justices, through the agency of committees, in the control and management of all executive details. The total amount at the disposal of the municipality in 1873 was 450,613*l.* The ordinary income was 249,830*l.*, the chief sources of which were the rates levied on property on account of police, water, lighting, &c., the receipts on account of licenses on trades, professions, &c., and those from taxes on horses, carriages, and carts. The ordinary expenditure amounted to 251,943*l.* A new municipal market was in course of construction throughout the year. The drainage works in the northern portion of the town progressed rapidly; the number of houses connected with the sewers was 3,201. The beneficial effects of the Calcutta waterworks were fully appreciated by the inhabitants; during the year 1,286 houses were connected with the works, bringing the total number up to 7,160. A scheme was carried out for providing unfiltered water direct from the river for street watering, but it was not followed by much success.

Madras town. The ordinary receipts and expenditure of the Madras municipality were 51,299*l.* and 48,481*l.* respectively. In addition to the latter sum there was an outlay of 7,384*l.* on the water supply project, which had nearly approached completion at the close of the year. The total mileage of the piping laid was nearly 39 miles, and the number of fountains open to the public 133, with 55 house connexions, not including public buildings.

Bombay town. In Bombay, the income amounted to 332,411*l.*, and the expenditure to 304,458*l.* The principal work which engaged attention was the carrying on of the new works in connexion with the Tulsi Lake. The water gathered at the Tulsi and thrown into the Vehar Lake was so considerable in quantity as to cause an overflow in the level of the latter, increasing the ordinary storage by 60 days' supply. The Health Department was busily occupied in cleansing the town. An experimental system of drainage was introduced into the Sonapore district, and so far has proved very successful.

Bengal. In the Lower Provinces there were 187 municipalities, the aggregate income of which was 174,354*l.*, and the expenditure 174,028*l.*

Madras Presidency. In the Madras Presidency the municipalities numbered 47, one having been added in the course of the year. The total income was 112,044*l.*, and the expenditure 117,540*l.* Considerable sums were spent on markets, and at Tuticorin and Nellore some useful works were undertaken in connexion with water supply. The outlay on conservancy was much higher than on any other single object, amounting to nearly 24 per cent. of the whole expenditure.

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* The Rent Act was included in the Report for 1872–73 among the measures of that year, but it did not become law until 22nd December 1873.

† This Act was also noticed in the last Report; it was passed in the *Session*, but not in the *official year*, 1872–73.

The number of mofussil municipalities in Bombay at the beginning of the year was 213, but 27 of the smaller ones were abolished. The mode of taxation most generally adopted is that of octroi duties, which yielded more than 57 per cent. of the whole revenue. Next in popularity comes the house-tax. The total income of the year was 205,985*l.*, and the total expenditure 189,576*l.* The Bombay Government have frequently urged upon municipalities that a good and sufficient water supply is the first and main object on which their revenues should be expended, and this suggestion has been kept practically in view. Of the entire expenditure 32·22 per cent. was devoted to public health, and of this proportion 35·5 per cent. was spent on conservancy. It is said that there is nothing on which the people are so ready to spend their money as in improving the sanitation of the towns. **Bombay Presidency.**

The Bombay District Municipal Act did not come into operation until after the close of the official year 1873–74. It provides that, instead of the people being left to petition for municipalities, the power of proposing their institution shall be placed in the hands of the Government; the inhabitants have the privilege of preferring objections, which will be duly considered. The power is also given to Government to mass together groups of villages into one municipality, provided they are not separated by more than a mile of unoccupied ground. One of the leading features of the Act is to divide municipalities into two kinds, viz., city and town municipalities, in the former of which Government may direct the whole or any part of the non-official members to be appointed by election.

In the Punjab, municipal committees were in operation in 128 towns or places, and a municipal income was also raised in 185 minor towns to which the Act of 1873 had not been formally extended. The income (not including the latter class of towns) amounted to 175,030*l.*, the expenditure to 193,860*l.* The bulk of the receipts (84 per cent.) was in the shape of octroi. **Punjab.**

Eighty-one towns in the North-West Provinces were brought under the Municipal Act, including three added during the year under report. In most cases the committees are elected by the inhabitants; the franchise was widely extended in 1872–73, and in the following year a still further extension took place. The income from all sources was 192,278*l.*, of which 157,198*l.* was derived from taxation, principally octroi. The expenditure amounted to 195,651*l.* In most of the towns great progress has been made in paving and draining the streets, and in many places the ventilation has been improved by opening out broad thoroughfares on the sites of narrow lanes. **North-West Provinces.**

The municipalities in Oude numbered 19. With the exception of Lucknow and Fyzabad, they are all small, and none of them are rich. The receipts were in all 41,909*l.*, of which far the greater part was collected as octroi. The disbursements reached 41,854*l.* In many of the towns something has been done in the way of enforcing sanitary regulations. **Oude.**

There were two municipalities in Ajmere, one of which (Beawur) showed much activity. The united income was 4,304*l.*, and the expenditure 4,443*l.* **Ajmere.**

In the Central Provinces there were 56 municipal towns, and in 42 of them octroi was either the sole or the principal source of income. The total receipts from all sources were 68,172*l.*, and the expenditure 52,000*l.* The abundant supply of pure water to Nagpur by the completion, at the beginning of 1873, of the Ambajhari reservoir was most thoroughly appreciated during the ensuing hot season. **Central Provinces.**

Nineteen new municipalities were constituted during the year in Mysore, raising the total number to 77. The receipts were 35,319*l.*, and the disbursements 33,913*l.* **Mysore.**

The five municipalities in Berar continued to work satisfactorily. The year's income was 6,318*l.*, and the expenditure 6,422*l.* **Berar.**

In British Burmah, the receipts of 45 municipal and town funds aggregated 65,513*l.*, and the disbursements amounted to 68,794*l.* The year was one of considerable progress in respect to sanitary works, especially in connexion with the drainage and conservancy of the town of Rangoon. Improvements were also carried out in Prome, Akyab, and other towns. **British Burmah.**

II.

FINANCE.

REVENUE AND EXPENDITURE.

THE total Revenue in India and England for 1873–74 was 49,598,253*l.* The Ordinary Expenditure was 49,968,569*l.*, or with the addition of Guaranteed Interest, 51,405,921*l.*, showing an excess over income of 1,807,668*l.* The Extraordinary Expenditure amounted to 3,553,307*l.*

Of the income, 21,037,912*l.* was derived from Land Revenue; 8,324,879*l.* from Opium; 6,150,662*l.* from Salt; 2,699,936*l.* from Stamps; 2,628,495*l.* from Customs; and 2,286,637*l.* from Excise.

The expenditure under the head of Army amounted to 15,228,429*l.*; that for Interest on Debt to 4,618,850*l.*; on "Ordinary" Public Works to 2,357,941*l.*; and for Famine Relief to 3,864,673*l.*

The Extraordinary Expenditure was divided as follows: Irrigation 1,198,682*l.*; State Railways 2,354,625*l.*

The following statement shows the distribution of the first three heads of receipt above mentioned among the several Provinces :—

—	Land Revenue (including Fisheries).	Opium.	Salt.
	£	£	£
India (General and Political) -	64,655	—	76,321
Bengal - - -	3,946,800	5,582,984	2,621,891
Madras - - -	4,451,489	—	1,295,180
Bombay - - -	3,683,461	2,741,895	734,777
Punjab - - -	1,989,963	—	867,275
North West Provinces -	4,209,704	—	422,406
Oude - - -	1,330,778	—	2,200
Central Provinces - -	608,728	—	118,038
British Burmah - -	752,334	—	12,574
	21,037,912	8,324,879	6,150,662

A prominent feature in the finance of the year was the resolution not to re-impose the income tax.

PROVINCIAL ASSIGNMENTS.

The scheme of provincial assignments (*see* p. 10 of last Report) appears on the whole to work well. The allotments to the several Administrations were as follow :—

	£
Bengal (including special additional assignment of 250,000*l.* for Famine Relief Works) - -	1,234,307
Madras - - - - - -	815,904
Bombay - - - - - -	987,791
Punjab - - - - - -	546,148
North-West Provinces - - - -	646,840
Oude - - - - - -	222,769
Central Provinces - - - -	277,500
British Burmah - - - - -	302,000

These amounts are supplemented by departmental receipts, and in two or three of the Provinces by provincial taxation also, which is levied for roads, schools, watching, and other local purposes.

BENGAL ROAD CESS.

The Bengal Road Cess is stated to have proved a complete success. Its introduction has been accomplished with great facility; the valuation and assessment have been effected with little friction or inconvenience to the people; landholders have offered no kind of resistance; and it has been paid regularly and smoothly, its incidence being so light as to be almost inappreciable. The cess affords rich districts the means, often urgently wanted, of making and repairing their roads, and of opening or maintaining the water-ways which are of so much importance to the producing districts of Eastern and Northern Bengal. It has consequently been determined to extend the operation of the Act as completely as possible throughout the Province.

III.

LAND REVENUE.

A SUBJECT which has attracted much serious attention in connexion with the administration of the land is the alleged indebtedness of the cultivating classes, with the result that their ancestral estates are gradually passing out of their hands through heavy mortgages and compulsory sales. This is reported to be the case in the Bombay Presidency, the Punjab, North-West Provinces, Oude, and Central Provinces. One reason assigned in Bombay for this state of things is the improvidence of the people, who, though not as a rule extravagant or self-indulgent, are victims to the exactions of society and caste, and in this way often incur the most crushing liabilities, regardless of future consequences. But the evil is stated to be much aggravated, if not in some cases entirely caused, by the grasping and unscrupulous dealings of money-lenders, who induce the ryots to sign bonds for much more than they borrow, and often to renew the bond for an enormously increased sum, the creditor taking as his security the whole of the crop except what is just sufficient for the maintenance of the ryot and his family. So long as good crops and high prices prevail, the ryot is not much pressed, but when it is otherwise, he is dragged before the court and deprived of all he has. TRANSFERS OF LAND.

There are, naturally, various opinions as to the advantage or otherwise of these land transfers. On the one side it is considered that the sale of land should be as free as the sale of stock, while the class into whose hands the land appears to be passing is one at the same time richer, more intelligent, and more provident than the peasant proprietary. On the other hand, the general view in India is that the threatened change is one fraught with evil consequences, and by all possible means to be averted. In the North-West Provinces power has actually been given to the collectors under certain circumstances to check or postpone sales of land for debt, and in Bombay and the Central Provinces the question of legislative interference is still under consideration. The Lieutenant-Governor of the Punjab, however, thinks that the judicial officers present a far too gloomy view of the financial position of the peasantry, and one which contrasts remarkably with the record of general prosperity prevailing throughout that Province. In the latter Administration, moreover, special restrictions on alienation exist. No ancestral or joint-acquired property can be sold in execution without the sanction of the chief courts, which is rarely accorded; and every voluntary sale of land within a village boundary is voidable unless it is first offered to members of the village community.

In the last Report (p. 17) reference was made to agrarian disturbances which had broken out in the Pubna District. Some of the evils brought to light were very deep-seated, and their remedy would involve important alterations in the revenue law of Bengal. The Lieutenant-Governor, however, issued a proclamation warning the ryots that, while Government would protect them from all force and extortion, it would firmly repress all violent and illegal action on their part. Rioting ceased almost immediately, and it appeared likely that the matters in dispute would be left to the decision of the courts. Things were still unsettled in several districts during the year under review, but there was remarkably little agitation in the Native press, and no further disturbance of the public peace. PUBNA DISTURBANCES.

The pressure of the famine necessitated a postponement of the consideration of the rent question by Government, and it is to be hoped that the forbearance and benevolence shown by the landlords generally during that crisis will not be forgotten, and that both parties will approach the subject with mutual feelings of kindliness and moderation.

Inquiries made regarding the imposition by zemindars in Orissa of illegal cesses on their ryots fully established the existence of the grossest oppression. An example was made of three zemindars by depriving them for a time of the management of their estates; and measures are being taken to remedy the various evils brought to light. ILLEGAL CESSES IN ORISSA.

Instructions were issued by Government for the guidance of the managers of Wards' Estates in the administration of surplus funds. Such funds are not to accumulate for the future use, and probably harm, of the young zemindars, but, after the payment of all debts, they are to be laid out in the improvement of the estate and the well-being of its inhabitants. It is desired that estates under the Court of Wards should be models to the surrounding country of what a solvent and wisely administered property should be. WARDS' ESTATES.

ASSESSMENTS IN BENGAL.

The land revenue demand for the year in Bengal was 3,954,864*l.*, being an increase on the previous year of 10,904*l.*, which was due to re-settlements of estates and extension of cultivation. The deficiency of the collections consequent on the famine was very small, and such suspensions of revenue as were granted were given as a reward for exceptional exertions in relieving distress. This result is considered by the Local Government as creditable to the working of the permanent settlement.

ASSESSMENTS IN MADRAS.

In Madras satisfactory progress was made in the work of settlement with results very beneficial to the revenue. Where, however, these results were brought about, not by the discovery of an excess in area, but by increased rates of assessment, the Government did not enforce the levy with undue speed, but readily consented to a postponement wherever circumstances seemed to make it desirable.

ASSESSMENTS IN BOMBAY.

Original and revised settlements were introduced in 771 villages of the Bombay Presidency, raising the land revenue collected from those villages by 38 per cent. Careful inquiries and calculations showed that, as a rule, the assessment was light, scarcely ever amounting to one-sixth of the gross produce. The depressed condition of the agricultural classes in Bombay has been ascribed in some of the local papers and other publications to the new assessments lately imposed. This, however, has been clearly proved not to be the case, although the Government recognize in that condition a reason for moderation in future assessments.

NORTH-WEST PROVINCES REVENUE AND RENT ACTS.

The passing of the Revenue and Rent Acts for the North-West Provinces was the result of nearly two years' deliberation and labour, and forms an epoch in the history of the revenue administration of that Province. They are considered to be of the greatest importance, not only as measures of reform, but also as codifying and defining the practice previously existing. Among the changes introduced the following may be mentioned. There had previously been nothing to deter the landlord from suing for enhancement every year if he chose. To remedy this evil it was at first proposed to concede by the new Bill to occupancy tenants fixity of rent during the whole term of settlement; the Lieutenant-Governor, however, thought that it would be a sufficient boon to the tenant, and fairer to the landlord, if the former were protected from enhancement for a term of ten years, and the point was decided accordingly. The rights of a proprietor in land are, under the new law, distinguished from the rights he acquires as a cultivator in the fields he cultivates; in future the sale of the former rights for debt will not involve the loss of the latter, and the ex-proprietor, instead of becoming a homeless outcast from his ancestral village, will only sink into the position of an occupancy tenant of his hereditary fields, holding them at somewhat favourable rates.

ASSESSMENTS IN BRITISH BURMAH.

In British Burmah there are no large landholders, and no middlemen receiving a rent exclusive of the Government demand. The increase of cultivation has been so rapid that the larger proportion of the cultivated land is under annual assessment; the cultivators are, however, learning the advantage of a lease on fixed rates for a term of years—never as yet exceeding ten—whereby they avoid annual measurements and enjoy certain other privileges. The land revenue demand in 1873–74 was 10·96 per cent. in excess of that in the preceding year; this large increase was owing to the greater quantity of land brought under cultivation, and to the propitious season, which made the assessment fall lightly on the cultivators.

IV.

AGRICULTURE.

SEASONS AND AGRICULTURE. Bengal.

THE weather in Bengal had been abnormal during three consecutive years. In 1871 the rainfall was excessive, but the crops were very good. In 1872 the rainfall was deficient, but was happily distributed, and the crops were good. The year 1873 was dry almost beyond precedent, and the rain that fell was unfortunately distributed; the winter crops consequently failed, and scarcity ensued.

The worst appearances were in Behar; only in the Orissa Division of the Bengal Presidency were the reports altogether satisfactory. The Government lost no time in organizing relief works.

An important question arose as to the prohibition of the export of grain from British Indian ports. This measure was strongly advocated by Sir G. Campbell

and by the Native press. On the other hand it did not commend itself to the judgment of Lord Northbrook, who considered that it would derange trade, give occasion to claims for compensation which it would be difficult to adjust, and after all might not add materially to the available stock of rice. He had full confidence that the energy and enterprise of those engaged in the internal trade of British India would prove equal to the occasion. At the same time he did not make any pledge as to what might or might not be done in the event of extreme necessity arising.

An arrangement made with the railway companies to reduce the rates for the carriage of grain, the difference being paid by the Government, had the desired effect of stimulating the importation of grain into the distressed districts.

The food supplies of India, including British Burmah, proved amply sufficient to meet the demand. The total quantity of grain purchased by the Government was 479,696 tons, and of this only 54,300 tons were obtained from beyond British India.

The reports of the Central Relief Committee show that the appeal which was made to the liberality of the public was cordially responded to. The sympathy manifested by the people of England was much appreciated. The princes and chiefs of India distinguished themselves by the alacrity with which they contributed, and liberal subscriptions were received from all parts of the country, especially from landholders in the distressed districts.

As January advanced without sign of rain, anxiety was more and more widely felt; but during the last week of that month heavy showers began to fall in southern Bengal, and rain gradually reached the northern districts. These rains caused considerable reduction and contraction of the danger. The famine reached its culminating point at the end of May 1874, and by the following October had nearly died out.

As the result of the measures adopted to cope with the famine, the number of proved cases of death directly traceable to it did not exceed 22..

Fears have been expressed lest the administration of relief on a great scale should tend to demoralize a people chiefly agricultural, and to relax their zeal for husbandry. Not only, however, is there no reason to believe that any demoralization has followed, but, on the contrary, it is probable that a lesson has been learnt regarding the vicissitudes of season, and the expediency of losing no chance of self-preservation by skill and promptitude, which will not soon be forgotten. Though here and there persons showed some unwillingness to quit relief, Sir R. Temple reports that, on the whole, there never was evinced such a degree of alacrity and industry among the people.

Madras.

The seasons in the Madras Presidency during 1873–74 were fairly propitious in the northern districts, while in the south they were decidedly unfavourable. Towards the close of the year scarcity and want of water gave great cause for anxiety in some parts, especially in Chingleput, South Arcot, and Madura, but some remissions of land revenue and a few relief works were sufficient to stave off calamity, until a burst of rain at the beginning of 1874–75 removed all fear of danger.

Owing to the unseasonable weather in Madras, only a small number of field experiments were attempted in the Government Farms, and but few of these brought to light anything of special interest. The subsoil drainage experiment promises to yield most important results. During the dry season, when the crops in the undrained land were withering from want of moisture, those on the pipe-drained land were luxuriant and healthy.

Bombay.

The year was not on the whole a favourable one for Bombay; the rainfall was rather above than below the average, but in many places it was unseasonable. The only place, however, where there was any apprehension of distress was Dharwar. Special relief works were undertaken in that district, and an early fall of rain in May removed all fears of famine. In Sind, where cultivation mainly depends on the inundation, the season was bad, and in particular places crops were totally destroyed by blight and other causes; here also, however, there was no famine.

It is said that no marked improvement of agriculture is visible in the Bombay Presidency; at the same time it would appear that the native processes, though rude, are generally the best suited to the country. English ploughs have been tried, and in Ahmedabad in particular they are stated to be coming into requisition, but although they succeed in black soft soils, the native instrument appears the best adapted for hard red soils, which it is scarcely possible, if desirable, to plough deeply. The

greatest drawback to the improvement of agriculture is the absence of live stock, which is required for keeping up the fertility of the soil. As the great bulk of the people do not use animal food, cattle are maintained only in such numbers as are necessary for cultivation and carrying purposes, and are too few for properly manuring the land.

Punjab. The year was the most prosperous, in regard to seasons as well as in other respects, which had been known in the Punjab since the annexation. Both spring and autumn harvests were above the average, and the Province was able to afford substantial help to Bengal. Although up to the close of the year 117,742 tons of grain were despatched to the latter Province, so abundant was the supply that the price of wheat and of other grains actually fell instead of rising.

North-West Provinces. In the eastern districts of the North-West Provinces there was some distress, requiring Government measures of relief, consequent on the failure of the autumn crops of 1873. There was also some scarcity in the southern districts; the rainfall had been unequally distributed and untimely, and agricultural prospects were further affected by serious floods.

Oude. The dryness of the season caused some distress in Oude, and there were even apprehensions of a general scarcity, which, however, were removed by the rain that fell in January and February. After that, the prospects of the cultivating classes are reported to have been better than they had been for several seasons.

Central Provinces. A remarkable feature in the agriculture of the Central Provinces is the distribution of different varieties of crops. This is a most fortunate circumstance for the Province, as the crops are entirely dependent for success or failure on the fluctuating character of the seasons, and thus a monsoon, full of disappointment and perhaps suffering to one section of the community, carries to other sections the boon of an ample harvest. Such was the case in 1873–74, when the rainy season was unsuitable to the exigencies of the rice crop, which failed to such an extent that, but for extensive reserves from former years, much distress must have arisen. To the other kinds of crops, however, the same season was peculiarly adapted, the result being an out-turn in most cases considerably above the average. Of all crops rice is probably the most precarious, and in whatever tract this is too exclusively cultivated, each succeeding season cannot but be more or less a period of uncertainty and anxiety. Irrigation is much needed in this Province, but the Chief Commissioner fears that the time is distant when it will be largely available to the people as a protection against famine, as no scheme has yet been proposed which would prove remunerative, and the people are too poor to pay a general water-rate. Much, however, is being done in individual villages by the people themselves in making tanks, embankments, and wells.

Mysore and Coorg. The seasons were not very favourable in Mysore and Coorg, and the result was a partial failure of the staple crops. There was a considerable decrease in the out-turn of coffee, and the price was unusually high.

The establishment of an Experimental Farm at Bangalore was sanctioned during the year by the Government of India. The services of a graduate of the Royal Agricultural College at Cirencester have been secured for its superintendence.

Berar. In the Hyderabad Assigned Districts the seasons and crops were on the whole good. Of the area under cultivation 40 per cent. was occupied by jowaree, 31 per cent. by cotton, and the remainder by other crops. In the preceding year the area under cotton was returned at only 29 per cent.; the large increase under this head might be considered undesirable were it not that the cultivation of cereals has increased even more than that of cotton.

The Government Farm at Oomraottee, having proved a failure, was abolished; and it has also been found necessary, since the termination of the year, to close the Akola Farm.

British Burmah. In British Burmah the rainfall of 1873 was one of the heaviest on record, but it was well distributed, and the crops were generally good. The quantity of land under rice was 2,061,568 acres, being an increase of 178,448 over the preceding year; and the crop was the largest ever grown, yielding not only an ample supply for the inhabitants of the Province, but also upwards of 800,000 tons for export, of which about 290,000 went to Bengal, whilst the European markets were fully provided, and several thousand tons were forwarded to Upper Burmah.

There are estimated to be in British Burmah 44,000 square miles of culturable land, of which more than 40,000 are unoccupied, owing to the paucity of population. Since it came under British occupation there has been a steady increase both of population and of cultivation. The increase of area under the latter head, which

for the past five years had been at the rate of 2½ per cent., rose to 9·37 per cent. during 1873–74.

The first of a series of agricultural exhibitions in the Madras Presidency was held on the Sydapet Farm in February 1874, and the results were on the whole satisfactory. There was a remarkably good show of cattle, most of which came from Nellore, showing that the annual cattle shows which are held in that district are doing good. AGRICULTURAL EXHIBITIONS.

Cattle fairs were established in various parts of the Punjab to facilitate the purchase and sale of stock, and to encourage the improvement of the breeds.

In the early months of 1874 agricultural shows were held in the various districts of British Burmah. At first the people were under the impression that new taxes were to be imposed, the shows being the means through which they were to be brought together and their property taxed. This feeling, however, passed away with explanations from the district officers, and on the days of the shows large numbers assembled. The competitors for prizes were numerous, and some very fine specimens of cattle, rice, tobacco, &c., were brought forward. The results having been on the whole very satisfactory, it is intended to hold the shows annually in future.

An account of the extraordinary development of the jute industry was given at page 110 of last year's Report. During the year under review, a Commission, appointed by Sir G. Campbell to make a special inquiry into matters connected with the cultivation of this fibre, sent in its report, which is an exhaustive and valuable one. Of the area under jute cultivation, about a quarter is newly reclaimed land, a tenth has been taken from indigo, and two-thirds have been alienated from food grains. This has not so reduced the supply of grains as to be injuriously felt, while the industry has materially improved the condition of the ryots. The following improvements are suggested in the cultivation and preparation of the fibre. *First*, there should be careful selection, and occasional change, of seeds. *Secondly*, the land should be kept from exhaustion by manure, rotation of crops, and observance of fallows. *Thirdly*, there should be great care in selecting the time for reaping, and in the subsequent manipulation. JUTE.

The report elicited an interesting memorandum by the Vice-Consul at Dunkirk, which will be noticed under the head of "Trade and Manufactures."

The attempt to acclimatise Carolina rice in Bengal was renewed, but the experiments resulted generally in failure. CAROLINA RICE.

A letter from the Government of India, dated 2nd October 1873, forwarded a note by Mr. Knight, the Assistant Secretary in the Agricultural Department, stating that the experimental cultivation of Carolina rice in India had never yet been conducted properly, that is, according to the method pursued in America; that the canals, on which so many millions have been sunk, might be turned to useful account for this cultivation, requiring as it does a large artificial supply of water; and that more care would probably be bestowed on the subject if the high price which Carolina rice commands in the London markets as compared with the indigenous Indian rice (stated by Mr. Knight to be nearly three times as high) were generally known.

Since the American Civil War very little Carolina rice has come into the English market; America, on the other hand, taking her rice supplies from England.

The chinchona plantations in Sikkim have now passed beyond the experimental stage, and indicate that the care and expenditure which have been bestowed upon them for so many years will have satisfactory results. The Government has now in Sikkim alone about 2,000 acres under chinchona. It is estimated that after 1877 there will be a steady yearly supply of not less than 150,000 lbs. of dry bark. A permanent quinologist has been appointed to the plantations. CHINCHONA.

In the Nilgherries a severe frost did great damage to private plantations, but the Government plantations escaped with comparative immunity. The long dry weather which succeeded the cold was very trying, especially to young plants.

In British Burmah a large number of chinchona plants were set out, of which 86 per cent. were found at the close of the year to be well established.

Ipecacuanha cultivation has been carried on by the chinchona establishment in Sikkim. Until the mode of propagating the plant by root and leaf cuttings was discovered, progress was extremely slow, but since this discovery it has been proportionately rapid. IPECACUANHA.

There was an increase in cotton cultivation, both in Madras and Bombay. In the former the area was 1,691,921 acres, or 2,963 more than in 1872–73. In the COTTON.

latter (including Native States) it was estimated at 4,247,154 acres, being an increase of 367,353.

Special attention is devoted to cotton in the Bombay Model Farms. At Khandesh seven fields of about 67½ acres were sown with seed of the Hingunghât variety, and are said to have yielded an average net profit of 47·29 per cent. This district does not appear suited for exotic cotton; but on the Salaru Farm, in Sind, the New Orleans produced an out-turn almost equal to that of the Sind Native, while the Nankin variety also gave favourable results. At Dharwar about 29½ acres were sown with indigenous and Dharwar-American cotton, and no less than 1,400 lbs. of good seed were saved for distribution and future sowings.

TOBACCO. Tobacco is grown more or less extensively in every district of Bengal, except Gya and Noakholly. The returns show a total area of about 200,000 acres under cultivation; and the gross annual value of the out-turn is roughly estimated at about one million sterling.

V.

IRRIGATION.

IRRIGATION. Northern India. In connexion with the Orissa and Soane Canals various works were completed and repairs effected. The main Midnapore Canal was completed and opened for through traffic on 1st October 1873. The area irrigated by the Orissa Canals was 12,571 acres, against 4,753 in the previous year; that by the Midnapore Canal was 36,349 against 13,406 acres. Sir R. Temple considers that the completion of the present system of the Orissa Canals would entirely protect the province in the event of drought. It is estimated that the value of the grain saved by the Soane and Midnapore Canals, incomplete as they were, must have been at least 600,000*l*.

The Government embankments in the Hooghly and Burdwan Districts were maintained in good order, and several bad breaches caused by floods were repaired. Certain works were carried out which form a portion of a complete scheme under consideration for a permanent water-supply to the Hooghly District.

Another work which conferred great benefit on the same district at little cost was the opening out the Kana Nuddee, an old silted-up channel of the Damoodur, and admitting into it water from that river. The banks of the Kana Nuddee are densely populated, but the villages have few tanks, and depended for their drinking water on the stagnant and putrid pools in the bed of the nullah, the condition of which was filthy in the extreme, cremation being practised on the banks, and the channel itself used for the reception of all the refuse of the neighbourhood. By the above measure a clear pure stream from 40 to 80 feet wide, and 40 miles in length, was provided for irrigation as well as for domestic purposes.

Embankments, some 107 miles in length, were undertaken in Chumparun, Tirhoot, and Sarun as famine relief works, and at the close of the year were well advanced. It was contemplated, as a protective measure against famine, to construct irrigation canals from the Gunduck in communication with the embankments.

The Agra Canal was opened by Sir W. Muir on 5th March 1874, and water was admitted to the channel; but the commencement of irrigation was deferred until the works should have experienced a six months' trial.

Much progress was made on the Lower Ganges Canal; and alterations were commenced in the Ganges Canal with a view to fit it for the diminution of supply involved by the construction of the former.

A sum of 15,496*l*. was spent on the improvement of the Rohilkund Canals.

The work of the year in connexion with the Barec Doab, Western Jumna, and Inundation Canals consisted in ordinary maintenance and silt clearances. In the Sirhind Canal the total quantity excavated during the year was 49¼ millions cubic feet.

Madras. The principal irrigation operations of the Public Works Department in Madras consisted in the repair and general maintenance of the numerous works. The Madras Irrigation and Canal Company's canal was maintained in fair order throughout the year, and there was no failure in the supply of water for irrigation. It has not, however, yet been necessary to keep up a full supply of water, and until thus thoroughly tested, some doubts are entertained as to the stability of its earthwork and the quality of the masonry works. With a view of favouring the more rapid spread of irrigation a reduction in the charge for water was sanctioned. The area of cultivation was 15,299 acres, against 11,029 in 1872–73.

In the Bombay Presidency the most important work in progress was the Moota Reservoir and Canal in the Poona Collectorate. The canal was completed up to Poona, and was opened for irrigation in February 1874. Several other canals were in operation. Bombay.

In Sind cultivation mainly depends on an artificial supply of water. No entirely new works were undertaken during the year, but the Mitrow Canal was nearly completed, and is now in excellent working order. Many important improvements were made to other canals.

VI.

COMMUNICATIONS.

No new line was added during the year to the system of the East Indian Railway. The most important engineering work was the construction of a diversion, 4½ miles long, rendered necessary by the encroachment of the Ganges near Gograh. The Main Line passenger traffic continued to show a satisfactory increase. RAILWAYS.

The Chitpore Branch of the Eastern Bengal Railway, a work of considerable magnitude, which was executed with creditable rapidity, was opened for traffic on 25th August 1873.

On the Great Indian Peninsula Railway the viaduct over the Kistna was opened for traffic in October.

The Bombay Baroda and Central India Railway has been extended to Colaba. The Dakore Branch of this railway was commenced in November, and was completed and opened in the short space of five months.

The Kistna Bridge, on the North-West line of the Madras Railway, was opened on the 9th October 1873, and through communication between Madras and Bombay was thus permanently established.

The Great Southern of India line was maintained in good working order throughout the year, and no accident of any kind occurred to passengers.

Several restoration works were carried out on the Sind, Punjab, and Delhi Railway. Considerable progress was made with the works in connexion with the Punjab Northern and the Indus Valley lines. To the Oude and Rohilkund Railway there were added during the year 191 miles of length, and surveys were in progress for the extension of the main line from Moradabad, in a north-west direction, to join the Sind, Punjab, and Delhi Railway.

The section of the Agra State Railway between Agra and Bhurtpore was opened for traffic in August 1873.

The project for a railway from Chutteesgurh to Nagpore was under consideration, and was strongly advocated by the Chief Commissioner of the Central Provinces on account of the confined and inaccessible position of Chutteesgurh, which is apt to cause anxiety and difficulty in the matter of food supply.*

Two loans of 75 lacs of rupees each, at 4 per cent., were accepted from the Maharajah Scindia for a line between Gwalior and Agra, and towards the construction of the Indore and Neemuch Railway, with a loop to Oojein.

Four new roads were under construction in the Bengal Presidency, and a large expenditure was incurred on district road works, mostly undertaken for relief purposes. Much work was done in Madras and Bombay in connexion with roads. ROADS.†

The Kanhan Bridge, in the Central Provinces, was completed and opened for traffic in September 1873. A large amount of work was done in finishing off the Rangoon and Prome road; and a large number of works connected with roads and bridges were prosecuted in Mysore.

Extensions and improvements were carried out in the Godavery and Kistna navigation works. NAVIGATION.

The work of deepening the Paumben Channel was proceeded with, and at the close of 1873–74 the main channel was navigable at neap tides for vessels drawing 11 feet.

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* See page 8.

† See also remarks on the Bengal Road Cess (p. 4).

Late in the year was commenced the work of connecting the Pegu and Sittang rivers by a still-water canal with two locks, so that the water communication between Rangoon and Toungoo might be adapted for navigation by boats and light-draught steamers throughout the year. These two rivers had heretofore only been connected by a tidal creek, which is open during two or three days of each spring tide. The canal will bring the Sittang Valley into direct communication with the port of Rangoon, and will, it is expected, lead to a very great development of agricultural industry.

VII.

FORESTS.

FORESTS. THE total revenue from forests in India during 1873–74 was 623,131*l.*, and the expenditure (in India and England) amounted to 390,499*l.*

Bengal. The question of subordinating reclamation in the Soonderbuns to forest conservation has occupied serious attention. The Soonderbun forests are situated on the almost numberless islands that lie within the tidal waters of the Bay of Bengal. They are covered with a valuable and quick growing timber known as "sundri," and comprise also masses of trees and shrubs of lower growth, which are used for fuel. Much reclamation work has already been carried on, but the further disposal of land for this purpose was suspended pending the result of a special inquiry by the Conservator.

Considerable progress was made in the formation of reserves in the Cooch Behar Division. The inspection of the Sivok Hill Tract has shown the existence there of extensive slopes covered with a luxuriant growth of valuable and mature timber.

Some of the most important forest areas formerly under the Government of Bengal have been transferred to the Assam Chief Commissionership.

Madras. The transactions of the year in Madras show a working profit of 15,205*l.*

Bombay. In Bombay the net revenue was 48,223*l.*, being an increase on the previous year's receipts of 4,947*l.* This result was attained notwithstanding the fact that most of the operations were carried on with a view to the future requirements of the country rather than to present revenue. The work of selecting and demarcating forest reserves steadily progressed, and much attention was bestowed on planting and sowing, with results on the whole encouraging. The rights and requirements of the people in respect to timber were carefully regarded, and it was strongly impressed on all connected with the Forest Department that their aim should be to conciliate the villagers in forest tracts, and endeavour to secure their co-operation by liberal treatment, and by giving them employment as much as possible.

Other Provinces. The net receipts in the Punjab were 13,538*l.*; in the North-West Provinces, 66,299*l.*; in the Central Provinces, 28,481*l.*; in British Burmah, 59,398*l.* The exports of teak from the latter Province amounted to 116,418 tons.

DAMAGE BY FIRES. In some of the Provinces much damage was done to forests by fires; but in British Burmah and the Hyderabad Assigned Districts successful preventive measures are reported to have been adopted. In the latter an extraordinary amount of damage was caused by rats. In small plants the rats cut the stems close to the ground, and in the case of large ones they dig out the earth to a depth of two or more inches, and then gnaw through the roots in a sloping direction, giving them the appearance of having been cut with some sharp instrument.

VIII.

MINERALS.

COAL. THE geological and mineral survey of the Darjeeling Hills, which had been sanctioned by the Government of India on Sir G. Campbell's representation, was busily carried on during the cold season of 1873–74. Among the discoveries was

that of a wide stratum of coal. Experiments were in progress, but the coal will only be useful as artificial fuel, or as coke, while it is anticipated that mining operations will be attended with difficulty.

The existence of coal in a certain part of Orissa had been known for many years, but as it was reported to be of indifferent quality, and transit was difficult, no active measures were taken until, the latter difficulty being now removed, a trial excavation was made during 1873–74. The Talcheer coal-field was found to be more extensive than had been supposed, and the coal to be a fair fuel, although rather below the average quality of Indian coal. It is considered probable that, as the seam is worked further from the surface, the quality will improve.

The fact that there is coal in the Madras Presidency has at length been established beyond all question. Boring operations were carried on during 1873–74 at the village of Beddadanole, in the Godavery District, and four seams of coal or carbonaceous shale were struck; the extent of the seams had not, however, been ascertained. The coal as yet found was described as of poor quality, but it is thought that it may be better in other parts of the field.

At the Wurrora colliery the sinking of the shaft had progressed to 132 feet when the year opened, and the upper seam of coal was struck on the 20th July 1873 at 180 feet. Borings have proved the existence in this field of a main or middle seam of coal 15 feet thick, and of another underlying it of 11 feet in thickness; the former extending over two-thirds, the latter over the whole area of the field of 410 acres. It is not proposed to work the coal in the top or first seam on account of its inferior quality. The quality of the two lower seams has been proved to be about the same as the average of the better Indian coals. It is estimated that a ton and a half of Wurrora coal is equal to a ton of English coal, but the difference in cost more than counterbalances the inferiority in quality. It has now been clearly proved that the coal beds at Wurrora afford an ample supply to meet all possible requirements for a long series of years. The completion of the railway to the pits will make the coal available for employment by the Great Indian Peninsula Railway Company, and will thus materially reduce the cost of working the line.

The Mhowpani colliery was able to maintain a steady supply of 1,200 tons per month to the Great Indian Peninsula Railway—not, however, quite up to the demand. Apprehensions of exhaustion of the seams now being worked led to borings in other parts, but so far not with complete success.

The Pisgaon shaft, at the close of 1872–73, had reached a depth of 52 feet. Coal was struck on 30th October at 108 feet; the seam at this point was 21 feet thick. Trials with the coal were made in steam-engines with fair results.

IRON. There is a valuable mine of magnetic iron at Sikbhar, in the Darjeeling Hills, which has been opened out to a trifling extent by the natives. The supply of ore is very considerable, and the out-turn of iron might be largely increased.

There are indications of mines of iron ore in several districts of the Bombay Presidency. During the year a piece of ore from a village called Kotapur was examined by the Chemical Analyser, and was pronounced to contain no less than 89·62 per cent. of ferric oxide, corresponding to 62·73 per cent. of metallic iron. The ore appeared to be plentiful.

The quality of the Lohara ore having been placed beyond doubt, a recommendation was submitted to the Government of India by the Central Provinces Administration for the construction of two medium-sized furnaces, capable of producing about 150 tons a week of pig-iron, and converting the greater portion of it into steel by the Bessemer process.

The quality of the iron ore at Yenak, in Berar, was very favourably reported on by Mr. Bauerman, and the prospects of smelting the iron on the spot promise to be satisfactory.

In Mysore the quantity of iron produced was 19,298 maunds, against 20,114 in 1872–73.

GOLD. The existence of gold in the beds of the streams and rivers and in the sands of the seashore in South Malabar has long been known, and primitive mining operations have from time to time been carried on by the natives. In 1833 the subject was fully reported on by a committee, who arrived at a conclusion adverse to the productiveness of the mines, and the idea of working them on behalf of Government was then abandoned. In the course of 1873, however, attention was again directed to the subject, and the possibility of carrying on operations profitably by crushing the quartz in which the gold is embedded by means of the

improved machinery of the present day has created considerable excitement among those who have acquired land for planting purposes in South Wynaad. The auriferous deposits were under examination by a competent officer of the Geological Survey.

Gold was discovered during the year in the Dambal Hills of the Dharwar Collectorate. There was obtained in quartz from one vein a visible piece of the metal, which is said to show unmistakeably one source of gold, and may be an indication of smaller particles sufficient to make the ore worth crushing.

Three seers of gold were produced in the Kolar District, in Mysore. It is believed that a proper system of working would show the existence of a considerable quantity of gold ore in certain districts of this territory.

COPPER. An important discovery of a deposit of copper in a small island in the Nerbudda river was reported during the year. Some questions as to rights in the locality had to be determined, after which mining operations would be proceeded with.

TIN. The tin deposits which exist in the beds of streams in the southern portion of Tenasserim had, prior to the year under report, been worked only by Chinese and natives of the country, but the attention of European capitalists has now been directed to them, and the Malewoon township has been leased to a firm who are making considerable progress in their operations. The works had formerly been confined to "streaming," that is, separating the pebble and sand ore from the useless matrix by washing; but regular mining operations will now be conducted on a vein or lode which has been discovered in a hill at no great distance from the present workings.

LIME. Another result of the survey of the Darjeeling Hills is the discovery of an unlimited supply of lime, which, if the Teesta is found to be navigable up to the foot of the hills, could be brought down to the Brahmapootra, and exported in large quantities.

PETROLEUM. Petroleum is found in various parts of British Burmah. Considerable quantities were being obtained at Thayetmyo by an European firm who have works for treating it in Rangoon.

IX.

TRADE AND MANUFACTURES.

TRADE OF BRITISH INDIA. THE total foreign trade of British India during 1873–74 was as follows :—

	Imports.		Exports.	
	Merchandise.	Treasure.	Merchandise.	Treasure.
	£	£	£	£
Bengal - -	15,225,804	1,943,506	22,778,729	423,091
Madras - -	3,463,810	397,247	6,618,393	639,754
Bombay and Sind -	12,107,577	3,395,739	22,098,057	836,418
British Burmah -	1,796,418	56,041	3,465,599	14,808
	32,593,609*	5,792,533	54,960,778	1,914,071†
	38,386,142		56,874,849	
	95,260,991			

The trade was divided as follows among the different Continents :—

	Imports.	Exports.	Total.
	£	£	£
Europe - - - - -	30,538,483	34,822,374	65,360,857
America - - -	98,333	2,125,156	2,223,489
Africa (including Mauritius and Bourbon) - - -	629,085	1,294,628	1,923,713
Asia - - - -	6,774,704	18,417,192	25,191,896
Australia (including New Zealand and Tasmania) - - -	345,537	215,499	561,036

* Including 948,912*l.* for stores on account of Government.
† Including 35,000*l.* for treasure on account of Government.

The value of the trade with China was 14,645,015*l.*

At the end of this Report will be found a Memorandum on recent Fiscal Legislation in India, which comprises a retrospective review of the trade of India since 1856–57 under the heads of the principal articles of import and export.

CALCUTTA TRADE.

The total value of the trade of Calcutta (foreign and inter-portal) was 51,517,846*l.* The number of vessels entering the port was 1,359, with an aggregate tonnage of 1,052,112 tons; the number of vessels which cleared was 1,345.

The importations of rice, on Government and private account, amounted in value to 2,003,672*l.* As compared with the previous year, there was a decrease of 332,880*l.* in the value of rice exported to places beyond British India.

There was a decrease of more than a million sterling in the exports of raw cotton. The falling off was almost entirely in the exports to the United Kingdom, and was more than counterbalanced by an increase in the exports from Bombay, a circumstance which may perhaps be attributed to the preference of the manufacturers of this country for the larger staple characteristic of the cotton grown in Western India.

A decrease of 277,594*l.* in the importation of piece goods is attributed to the unfavourable state of the market during the greater part of the year.

In the value of raw jute exported there was a decrease of 692,430*l.*, owing to a smaller area having been sown with it, and the crop having been poor as compared with the two previous years. The excessive exportation of 1872–73 had also overstocked the markets in England, and the demand in Calcutta was very slack. There is no reason, however, to suppose that the reaction was more than temporary.

Reference has been made to the jute trade in a former section (p. 9). The Dunkirk spinners drew the attention of Government to three points in connexion with this subject, and a report by the Government of Bengal on their representations has since been received. The first suggestion was that the Indian Government should prescribe a scale of marks or brands for adoption by native traders; this course, however, was decidedly disapproved by the Government. In the next place they commented on the want of care shown in the preparation of the fibre. On this the Bengal Government remark that there is no doubt room for improvement in the process of steeping, but the question of price lies at the root of the matter, as cheapness is essential for the uses to which jute is principally applied. The third point was the advantage of a frequent change of seed. To this the people are stated to be not insensible, but the districts are remote from each other, and no organization exists for a systematic interchange. The Lieutenant-Governor is, however, not without hope that it may eventually be in his power to establish a well-organized central seed depôt. The Bengal Government notice another point which is of more importance than any of the above, viz., the injury done to the fibre, since the introduction of steam presses, by the extreme pressure applied in baling it. Spinners are willing to put up with this injury for the saving in freight.

It thus appears that the remedy for all the evils complained of lies mainly in the hands of the spinners themselves. The Bengal Government, however, feel great interest in the prosperity of the trade, and will always afford every possible facility or assistance in the matters referred to.

The produce and manufacture of tea showed a large increase. The value of the exports exceeded that of the previous year by 162,705*l.* The quantity exported in 1873–74 reached 19,185,000 lbs., being an increase of 9 per cent., following on an increase of 3 per cent. There were more than 85,000 acres under tea cultivation in Bengal and Assam at the close of the year.

The results of the tobacco export trade are also very encouraging. In 1872–73 the returns showed an increase of nine times upon the exports of the preceding year, and in 1873–74 there was a further increase of nearly 20 per cent., which is almost entirely due to trade with continental Europe. The opportunities for the increase of tobacco cultivation in Bengal* are very large, and the rapidly increasing demand that has now arisen for the Indian article may prove of the greatest significance to the country.

There was an increase of 848,409*l.* in the imports of specie and bullion. The increase was entirely in silver; in gold there was a decrease of 372,189*l.*

An important internal traffic took place on the Calcutta canals, the Nuddea rivers, and the Orissa and Midnapore canals. The principal article of traffic from

* See page 10.

Calcutta is salt. Enormous quantities of rice were, during the scarcity, conveyed to the capital by the above routes. The bulk of this inland traffic does not take at all to the railways.

MADRAS TRADE. The trade of Madras was in value 7,962,708*l.*, or including the subordinate ports, 16,676,913*l.* The value of coffee exported increased by 387,847*l.*, but the quantity decreased by 69,238 lbs. In consequence of the famine, Bengal became for the first time an important market for food grains, taking 15 per cent. of the whole. The total value of the grain exports was 1,328,541*l.*, against 868,714*l.* in 1872–73; the largest quantity (70 per cent.) as usual went to Ceylon.

BOMBAY TRADE. The trade of the port of Bombay amounted to 43,366,982*l.* This was nearly $2\frac{1}{4}$ millions greater than the trade of 1872–73, but it was far below that of 1871–72, or the average of the five preceding years. The number of vessels which entered the port was 7,205. Of this number, 6,491 were native craft, whereas only 275 vessels of this class were entered at Calcutta. The vessels which cleared amounted to 6,356.

The imports of merchandise in 1872–73 had shown a falling off of over 638,000*l.*, and the exports of 4,520,000*l.*; in 1873–74 there was an improvement under the former of nearly 680,000*l.*, and under the latter of over 764,000*l.* The exports, therefore, had not recovered in the same proportion as the imports.

There was a very considerable increase during the year in the amount of work done at the cotton mills, while the number of the mills was also rising. No less than nine joint stock companies were registered during 1873–74. The number of steam factories for ginning cotton and of cotton presses was rapidly increasing. Steam cotton presses have also been set up at Hingunghât and Wurdha, in the Central Provinces. The bulk of the cotton exported from the latter Province is sent to Bombay.

The exports of cotton piece-goods from Bombay showed an advance from 191,336*l.* to 254,571*l.* The increase of importation (19 per cent.) was greater than might have been expected when the large number of manufactories recently established in India is considered; it is understood to be partly due to the transfer to Bombay of the Calcutta orders when the famine in Bengal had occasioned a fall of prices.

There was an increase of about 16 per cent. in the value of raw silk imported, and of upwards of 22,000*l.* in the imports of silk piece-goods, the latter attended by an increase of 11,660*l.* in the exports.

A great falling off in the exports of coffee (from 45,525*l.* to 21,933*l.*) is accounted for by deficient crops.

An extraordinary impetus was given to the wheat trade by the abolition of the export duty. More wheat was exported in 1873–74 than in the whole of the five preceding years taken together; the trade increased at one bound from an average of 50,000*l.* to upwards of 250,000*l.*, and this consequent on the sacrifice of a revenue which had averaged only 1,963*l.* a year.

The importations of rice into Bombay from Bengal fell off to one-half, and those from Burmah to one-seventh of the former average. Rice was not exported from Bombay to Bengal to a larger extent than usual.

SIND TRADE. The trade of the Sind ports aggregated 4,335,517*l.* While most of this trade, particularly the import trade, takes place with Bombay, a considerable traffic is carried on direct with Europe and the Persian Gulf, as well as with other ports in India.

Here, again, the effect of the removal of the export duty on wheat was very apparent. The quantity exported was 806,308 cwts., an increase of 572,533 cwts.; of the latter quantity 548,686 cwts. went direct to the United Kingdom.

BRITISH BURMAH TRADE. The total trade of British Burmah by sea and land showed most satisfactory progress, having advanced from 13,218,841*l.* to 17,369,698*l.* With the exception of the exports to Upper Burmah, each branch improved extensively.

The chief portion of the rice required for the famine-stricken districts of Bengal was supplied from British Burmah without deranging private trade to any appreciable extent. The quantity exported to Indian ports was 196,434 tons, against 20,080 in the previous year. The number of steam mills for cleaning rice for exportation increases each year; in 1873–74 there were 42. By the ordinary hand-cleaning process the rice is husked, but the pellicle is not cleaned off, as in this condition the grain is generally found to be less ready to discolour during a long voyage. If it should be found that mill-cleaned rice may be safely carried to European ports, there is no doubt that the number of mills will rapidly increase.

A somewhat unfavourable account is given of the prospects of the timber trade of Moulmein, as year after year the timber in the Shan States, on which the supply depends, is being wastefully cut down, while no attempt is made to replace the felled trees by young plants.

The imports of tobacco into Pegu and Tenasserim increased by 80,819 maunds, but those into Akyab decreased by 4,142 maunds, which was probably owing to increased cultivation of the plant. The tobacco grown in the Hill Tracts is of fine quality, and has been very favourably reported on.

The supplies of cotton from Upper Burmah during the last two years reported on were much less than in some previous years, which is attributed to the prices in the Rangoon and English markets having been very low, and to the trade having in consequence been diverted to Western China, where there is a large demand, and to which great facilities of transport exist since the cessation of the Panthay war.

A lac manufactory has been started in British Burmah, at which both shellac and dye of excellent quality are being prepared. It is thought probable that this will form an important branch of trade in the future.

TRADE WITH EASTERN TURKESTAN.

Mr. Forsyth was deputed as the Viceroy's Envoy and Plenipotentiary to Yarkund with a view to the conclusion of a commercial treaty and the settlement of other measures for the development of trade and the maintenance of friendly relations. He left Yarkund on the 28th November 1873, after submitting the draft of a treaty for the acceptance of the Atalik Ghazee. The treaty was subsequently agreed to and concluded, its salient points being as follow:—Free access and egress for our European merchants at all times and by all routes; European British subjects to be allowed to trade under certain regulations, but to be furnished previously with passports from the Indian Government; equal privileges to be enjoyed by, and equal duties (not exceeding $2\frac{1}{2}$ per cent. *ad valorem*) to be levied on, all traders from India of whatever nationality; a British representative to reside with the Court of the Ameer, and commercial agents subordinate to him to be appointed in various towns; and the Ameer to have the same privileges in India.

Mr. Forsyth, in a report on the prospects of trade between India and Eastern Turkestan, expressed his belief that it was capable of expansion, but that British merchants must act with prudence and make proper arrangements, or they will be sure to meet with disappointment, and will cause discouragement to others. The people, though good-natured, friendly, and hospitable, own to no inferiority of race; they meet Europeans with perfect politeness, but on terms of equality, and any attempt at *hauteur* will be quickly and fiercely resented.

Mr. Shaw reported, at a later date, that the total value of the trade with Eastern Turkestan during 1873 amounted to less than 60,000*l*., a result which he regarded as insignificant, considering the careful attention which for six years the development of this trade had received from the British Government. The greater (he added) our experience of the route between India and Yarkund, the greater do the difficulties appear in the way of establishing a satisfactory trade route, owing to the length of the journey, the enormous altitudes to be traversed, the arid and unproductive character of a large portion of the country, the absence of population, and the deficiency of carriage and supplies.

The trade registered at Leh during 1873 showed the highest figure it had yet attained, viz., 177,673*l*. It is almost entirely a transit trade.

TRADE WITH THIBET.

At the beginning of 1874, Mr. Edgar was deputed by the Government of Bengal to inquire into the subject of the trade between India, Nepal, and Thibet. In subsequently forwarding his report, the Government of India observed that, while on the one hand the Resident in Nepal did not anticipate any substantial advantages from the opening up of a route to Thibet *viâ* Nepal, on the other hand the Lieutenant-Governor of Bengal was of opinion that a considerable trade might be established with the countries beyond Darjeeling, if a good road were constructed through Sikkim. The Government of India hesitated to incur expenditure at present on the construction of a road, on account of the alleged refusal of the Chinese to allow commercial intercourse with Thibet, and also because they thought that the extent and value of the trade would afford no return commensurate with the outlay. The Secretary of State, however, in reply, stated that he saw no ground for the belief that the Chinese would throw difficulties in the way of purely commercial intercourse with Thibet, at all events in case of a traffic carried on between the Bhooteas and Thibetans, and that it would appear that at present there is a very fair trade, considering that everything has to be transported

on men's backs; and he suggested that a survey should be undertaken to ascertain the cost of making a bridle-path through that portion of the route which lies within British territory.

Sir R. Temple strongly advocates the construction of such a road. He feels assured of the existence of an increasing desire on the part of the people of Thibet for commercial communication with the outer world, and he argues that we should not be so much introducing a new thing as endeavouring to secure the revival and permanent establishment of that which existed formerly.

From data collected by Mr. Edgar it appears that, while there is an almost entire absence of manufactures in Thibet, it is wealthy in cattle, and abounds in minerals. Its gold fields (hitherto little explored) extend from Rudok to Lassa, some 700 miles. It is stated that the authorities, from feelings of superstition, are opposed to the working of the gold and silver mines, but there can be little doubt that self-interest would soon operate on a people said to be eminently commercial. The advantages appear still more marked when we look to the traffic which we could carry into these Trans-Himalayan countries. English woollens and broadcloths are much sought after, though apparently they have to contend with Russian competition. A large expansion of trade might also arise, Mr. Edgar thinks, in the introduction of Darjeeling teas into Thibet. If the trade were free, our producers might in course of time supplant the China article both in quality and price; but probably this would be the latest concession which the Chinese Government would voluntarily make. Salt produced by solar evaporation abounds throughout Thibet, and is carried with immense labour to many parts, even to the north of Burmah. It is thought likely, however, that the salt from Calcutta, as better and cheaper, would quite supersede the produce from Thibet, and possibly find its way beyond that country.

X.

CONDITION OF THE PEOPLE.*

Vital statistics. There is not much improvement to record in the registration of vital statistics. The greatest advance in accuracy of death registration appears to have been made in the North-West Provinces, where the rate was shown as 22·9 per 1,000. Over the whole of the selected areas in Bengal the rate was 25·2 per 1,000.

Cholera. The year 1873 was on the whole a healthy one; least so, however, in Bengal. Cholera prevailed in that Province to a greater extent than in 1872, and was in fact endemic throughout the year; but the outbreaks of the disease were not of any extraordinary severity. In some districts of British Burmah also it was prevalent, but in all the other Provinces the mortality from this cause was quite insignificant as compared with former years. In Madras, for instance, the deaths numbered 840, against 13,247 in 1872; and in Bombay 283, against 15,642.

Small-pox. On the other hand, small-pox was more than usually prevalent throughout the Indian Peninsula; and in British Burmah, although not so prevalent, it proved more virulent than in 1872. Progress has been made generally in vaccination. This department of sanitary work is reported to be marked in Bombay by continually increasing vigour and success. The total number of operations in that Presidency during 1873–74 was 652,223, being an increase of 63,866 over the previous year. Very satisfactory results appear also to have been attained in the Kumaon Division of the North-West Provinces; in fact it is said that in the hill districts of Kumaon and Gurhwal small-pox has been extirpated as an epidemic disease. The people generally are becoming alive to the value of vaccination, and all prejudices are gradually disappearing.

Fever. The other great death-cause, fever, prevailed as usual. The importance of an accurate diagnosis and registration has become increasingly evident, a large number of diseases being too often loosely classed under this head. The special Burdwan fever appears almost, if not quite, to have disappeared. "Dengue" also seems to have died out in Bengal with the end of 1873; in the southern districts of Madras it continued to prevail, although to a much less extent than in 1872–73.

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* Some remarks on the general condition of the cultivating classes have already been made under the head of Land Revenue.

Energetic measures have been taken by the Madras Government to counteract the causes which have led to the long-continued prevalence of malarial fever in the Godavery District. It having been clearly proved that the fever is contingent on the presence of stagnant water, and that the great increase of the disease of late years is attributable to the spread of irrigation, the Government determined, in December 1873, to assign annually a sum of 10,000*l.* for works of drainage in the Delta, and, in cases where the flooding is in no way due to the irrigation works, to make loans to the villagers to enable them to execute the necessary work themselves.

Fever of this type is also the bane of the Province of Oude, and is more difficult there to counteract. The result of a special inquiry into the subject was that the main causes of this fever were shown to be the flatness of the country, which has few natural outlets for drainage, the drying up of rice swamps giving rise to pestilential effluvia, and the condition of the villages and dirty habits of the people themselves. Attention is being paid to this important matter. There appears, however, to be but little prospect of improvement in the villages, as conservancy is said to be opposed to the wishes and feelings of the people; it can only be hoped that the example of the municipalities may gradually leaven the masses.

SANITARY WORKS.

Advantage was taken in Bengal of famine relief labour to dig new wells and tanks wherever possible, and to clean out and repair old ones; and it is believed that in some parts the country has been permanently benefited by the supply of pure drinking water to the villages. In municipal areas still more pains have been taken to effect sanitary improvements, and a very fair measure of success has been achieved. Much importance is attached to conservancy; some of the larger towns until lately notorious for their unhealthiness are now free from all complaints on that score.*

HOSPITALS AND DISPENSARIES.

There was an increase of 28 in the number of Civil Hospitals and Dispensaries in Bengal; in Madras an increase of 14; in the Punjab, 4; in the North-West Provinces, 12; in Oude, 15; British Burmah, 1; and Berar, 1. There is evidently a growing appreciation of the benefits of these institutions by the natives.

EMIGRATION.

The scarcity in Bengal naturally affected emigration, though not in so great a degree as might have been expected. The number of emigrants to the colonies despatched from Calcutta rose from 8,231 in 1871–72, and 17,171 in 1872–73, to 24,569 in 1873–74. The majority (13,884) went to Demerara and Mauritius. There were 84 return emigrants who volunteered to re-emigrate to Demerara; they seemed to be in good circumstances, and it may be inferred that that colony affords very favourable opportunities for improving the condition of Indian emigrants. The total number of return emigrants was 2,481.

The number of emigrants despatched to the tea districts of Assam, Cachar, and Sylhet was 25,811. In the two previous years the numbers had been 9,342 and 14,411. While there has been some improvement in the health of the labourers in Assam as a whole, the death-rate there still compares unfavourably with those in the other two districts. Great mortality continued to prevail in some of the gardens, especially in Luckimpore; it is attributed chiefly to the weakly condition of unacclimatized coolies on their arrival, and nothing that skill or experience can suggest appears to be permanently of any avail.

A scheme of State emigration from Bengal to British Burmah was started in February 1874, partly as a means of alleviating the scarcity, and partly to promote the cultivation of waste land in the latter Province. It promised satisfactory results, some thousands of persons having found employment as labourers and domestic servants.

The number of emigrants from the Madras Presidency was 99,282; and of those who returned to it, 82,114. Of the emigrants, 88,418 went to Ceylon, where their labour is in great demand on the coffee plantations.

There was no emigration worth mentioning from Bombay.

Emigration from Oude would appear to be becoming more popular, as the number registered as intending emigrants in 1873–74 was 7,568, being 2,462 more than in the former year.

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* For improvements in Calcutta and in other municipalities, see pp. 2 and 3.

XI.

POLICE AND JUSTICE.

POLICE.

THE strength of the District Police force in Bengal remained much the same as in the previous year; it included 95 superior officers and 22,449 inferior officers and men. The dismissals exceeded those of the previous year, being nearly 4 per cent. on the strength of the force. The education of the men received attention, and improvement is reported. The Calcutta Police numbered 3,207 of all ranks, of whom only 157 were dismissed, and 61 deserted. The results on the whole testify to the improved efficiency of the force.

The total strength of the Madras Police was 22,282. From the numerous dismissals and resignations for several years past the Madras force does not appear to be in a very satisfactory state; there were, however, fewer than in the previous year. There were ten cases of extorting confession, a vice which, though sternly repressed, it is difficult to eradicate. The standard of education among the men is low, only 63 per cent. being able to read and write.

In Bombay, the Town Police numbered 1,338, the District Police 17,585, and the Railway Police 992. The dismissals in the former amounted to 55, and in the District Police to 32. The general conduct of the force was better than in 1872. A steady improvement is reported in the matter of education, which however is still in a very backward state.

STATE OF CRIME.

Except in the Central Provinces, Oude, Mysore, Berar, and the Northern Division of the Bombay Presidency, there was an increase in the criminal returns, but this result may, no doubt, be partly due to increased efficiency and vigilance on the part of the Police. The increase of cognizable offences in British Burmah was very considerable, but, on the other hand, there was a very marked diminution of violent crime in that Province. A satisfactory decrease of dacoities is reported in Madras, Bombay, and British Burmah. In the North-West Provinces, on the other hand, there was a revival of daring and violent dacoities, the cause of which the Government is unable to explain. The most serious form of dacoity, and one which was thought to have been almost completely stamped out, is the perpetration of attacks on villages by bodies of armed men, who attempt no concealment, but enter with torches and with firing of guns, and plunder their victims' houses at leisure. It is a satisfactory sign that in some instances the villagers did not submit tamely to spoliation, but resisted the dacoits with more or less success.

INFANTICIDE.

In the last-mentioned Province the Infanticide Act worked well. In the previous year (*see* Report, p. 135) there were 25 proclaimed districts; to this number three were added in the year under review. The proportion of girls to boys among the proclaimed population was at the commencement of the year 29 to 71, and at its close 30·8 to 69·2, which shows a very considerable improvement. The standard of presumed guilt is 35 girls to 65 boys.

The infanticide returns of Kattywar and Kutch are not at all satisfactory. In the latter the percentage of deaths to births among the Jhareja female infants was 34·52, while among the males the percentage was 18·6. The Rao has been informed that the great number of female infant deaths has attracted the notice of Government, and that it is hoped he will use his utmost efforts in aiding to suppress the cruel and barbarous practice of infanticide.

In Mahee Kanta there has been a great improvement, and the Political Agent hopes that, by a judicious use of the Infanticide Fund, and a stringent enforcement of the rules, the crime will in a few years be completely crushed out.

MOPLAH OUTRAGE.

The Moplah outrage in Malabar was the first disturbance of the kind that has occurred since the passing of the Moplah Act of 1854. In September 1873 a band of nine Moplah fanatics assaulted three persons, killing one of them, and took possession of a house, where they were shot down by an European detachment.

BOMBAY RIOTS.

The riotous disturbances in the city of Bombay in February 1874 have attained a notoriety disproportionate to their real importance. A large body of the Mahomedan population, who had taken offence at a disparaging reference to a statement in a book written by a Parsee, assembled and ransacked a temple, broke into some Parsee houses and stole money and jewels, and in other places damaged the property of Parsees. After this a few isolated fights took place. The

festival of the Mohurrum was at hand, and, to avoid the risk of further collisions, the usual processions were prohibited. The festival passed off quietly.

JAILS. The death-rates in many of the Bengal Jails were very high, which however is to some extent accounted for by the age and infirmity of many of the prisoners on admission. In other parts of the country the health of the prisons was, with a few exceptions, remarkably good. Care was bestowed on the education of the prisoners.

CIVIL LITIGATION. There was a considerable increase of civil litigation in most of the Provinces.

HONORARY MAGISTRATES. The policy of appointing Native gentlemen as honorary magistrates is being generally carried out. In the Punjab especially the unpaid magistracy is beginning to afford very sensible help in the administration of justice. As the sons of the Native aristocracy grow up, it is hoped that the Government will be able to avail itself of the services of a larger number of them in this way.

CHARACTER OF NATIVE JUDGES. A satisfactory report is given of the high character borne by the Native judges of all grades in Bengal, as regards both conduct and qualifications, and also of the improved status of the Native Bar.

REGISTRATION OF DEEDS. In the same Province a large increase of registration is reported, which seems to afford proof of the gradual elevation of several classes of the people. The increase was no doubt partly due to the pressure of the famine, which induced people having rights in transferable immovable property to pledge or sell those rights in order to avoid the consequences of the distress; but it may also be inferred that the growing confidence of the people in the system as a protection against fraud and a security against accidents, and, perhaps still more, the increase in the value of land, and the eager desire to become possessed of landed property, have had their effect in promoting registration.

XII.

EDUCATION.

EDUCATION. The year 1873–74 was distinguished by a very decided and general progress of education in India.

Bengal. In Bengal Sir G. Campbell's encouragement of primary instruction has given a marked and beneficial impulse to educational progress. His scheme of primary village schools (*see* last Report, p. 142) continued to make great advances. The returns (exclusive of the districts transferred to Assam) show that the primary schools maintained under the old systems increased from 2,478 to 2,584, and those under the new scheme from 5,775 to 9,645. Thus there were altogether 3,976 schools of this class added to the list; and the total increase of pupils was 197,498.

There were 1,325 Government and aided middle schools, with an attendance of 65,732 pupils. The unaided schools of this class numbered 219, with 11,535 pupils.

The number of Government higher schools fell from 50 to 46, in consequence of the reduction of the standard of three schools, and a change of classification in the case of another. The aided higher schools numbered 76, and the unaided 43. The total number of higher schools was 165, with 28,460 pupils, against 171, with an attendance of 29,718, in the preceding year.

There were 10 Government colleges and high schools, and 5 aided colleges. The attendance at these had fallen off, but this is explained by the great accession of undergraduate students in the Medical College, and in the Civil Engineering Department of the Presidency College, while the new Civil Service classes were also very full.

The number of candidates at the University Entrance Examination largely increased. In 1872 there had been an increase of 242, and in December 1873 there was a further accession of no less than 400, the number on the register having mounted up to 2,544. Out of this number, however, only 848 passed. The large number of candidates was probably partly due to the fact that it was to be the last examination for which particular text-books would be fixed in English literature.

The Lieutenant-Governor is desirous that students should be encouraged to persevere in their studies at the University until they become graduates. At present the entrance examination is too often regarded as the legitimate close

of an educational career, and comparatively few complete their course at the University.

The normal schools of Bengal amounted to 41 Government and 15 aided.

Madras. In Madras the total number of schools in connexion with the Educational Department increased by 1,435; the advance belongs almost entirely to lower class schools, which rose from 6,190 to 7,619, while the attendance of pupils increased from 149,081 to 185,630. The middle class schools numbered 510, with 29,800 pupils, and the colleges and higher class schools 65, with 13,100 pupils. The total of Government colleges and schools was 130, and of those receiving aid 5,646. Among the latter the Central Institution of the Free Church of Scotland Mission continued to hold the first place.

There were 16 normal schools in Madras.

Bombay. In Bombay the total increase of schools of all classes was 65, and of scholars 10,095. The latter increase is chiefly due to the development of old schools. The high schools numbered 43, middle class 164, primary 3,682 (with 191,730 scholars), girls' 241, and normal 12.

Of the total number, 3,489 were Government institutions, 187 aided, and 477 unaided.

An important event of the year was the completion of the University Hall, the foundation stone of which was laid in 1868. The examination results of the affiliated colleges compare favourably with those of the previous year. Satisfactory results are shown at the Law School and the Grant Medical College, and still more at the Poona Civil Engineering College.

Punjab. The Government colleges and schools in the Punjab amounted in number to 1,421, against 1,297 in 1872–73, and the grant-in-aid institutions to 499, against 488. The former included two colleges (besides the Punjab University College), 7 higher class, 129 middle class, 1,152 lower and primary, 101 female, and 3 normal schools; the latter 9 higher class, 51 middle class, 201 lower and primary, 232 female, and 6 normal. The average daily attendance was 78,643, against 72,076.

A marked improvement has taken place in the middle class anglo-vernacular schools. When the first examination was held four years previously, one boy (out of 149 candidates) obtained more than 50 per cent. of the maximum number of marks in English, and 19 boys more than 40 per cent.; in 1873–74 the numbers were 96 and 145 respectively.

North-West Provinces. In the North-West Provinces the year is stated to have been one of steady and satisfactory progress. The number of Government schools was 4,588, showing an increase of 225; that of aided schools was 387, against 373; while indigenous schools increased from 4,754 to 5,135. The average attendance at the Government and aided schools together rose from 138,874 to 153,434. The classification was as follows:—colleges and high schools, 44; middle class, 661; lower class, 4,260; normal, 10. The lower village schools of each district are now immediately under the District School Committees, which are now not merely consultative but administrative bodies. The change of system has worked in general very well; much interest in education has been shown by the committees, and their authority has been exercised with intelligence and judgment.

Oude. In Oude the number of schools connected with the Department rose from 1,290 to 1,326, and the average attendance from 39,826 to 43,651. The increase occurred chiefly in Government village schools, while in primary town schools and in female schools there was some falling off. The primary schools numbered 1,122; the middle class, 79; the higher class (including the Canning College), 17; female schools, 102;* and normal, 4.

In addition to the above, the number of indigenous schools, according to the returns, was 553, and the number of scholars 4,865. The quality of the teaching in these schools is inferior, consisting often merely of recitations from the Koran or the Sanscrit Shastras. It was under the consideration of the Local Government how far the non-religious schools of this class can be brought into some kind of harmony with the Government system.

The Bulrampur Medical School was opened in April 1873. It has been endowed by the Maharajah of Bulrampur with an annual income of 1,000*l.*, and it has for

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* The above figures are those given in the Oude Administration Report, but in the Appendix to that Report the number of primary schools is stated as 1,116; of middle class as 85; higher class, 15; and female, 100.

its object to open out to the natives of Oude a new and useful career, and to extend the benefits of improved medical skill as widely as possible throughout the Province. The school commenced with 27 students, and this number gradually fell to 15; those who remained, however, made fair progress. Considering that the institution had been open for less than a year, and that it was sure to encounter at first a good deal of prejudice, the results so far do not seem discouraging.

Ajmere. Ajmere is in a very backward condition in regard to education. In that district and Mhairwarra there were 29 Government elementary schools, comprising in all 932 pupils, or 127 less than in 1872–73. Very active and useful educational efforts by the Presbyterian Mission are reported.

Central Provinces. In the Central Provinces there were 4 high schools, the same number as in 1872–73; the middle class increased from 65 to 68; but the primary fell from 1,702 1,629, and the normal from 7 to 5. The attendance too decreased, but this to occurred for the most part in the early portion of the year, and during the latter half considerable improvement took place. Of the above, 900 were Government institutions, 632 were aided, and 174 unaided. The Nagpur Free Church Mission School is described as being one of the best aided schools in India.

While every effort is made to enlist the people in the cause of education by forming school committees, and inducing them to take an interest in the schools, there does not appear to be any real desire among parents in this part of India to have their children educated. It is hoped, however, that by gradually introducing a better class of teachers, and exciting their zeal through extending the system of paying according to the results of work done, by improved inspection, and by continual perseverance on the part of Government, much may be done in time to counteract the prejudice and apathy which form at present a serious bar to progress.

Mysore. In Mysore the general results of the year are regarded as fairly encouraging, There were at the close of the year 670 Government schools, 104 aided, and 1,536 unaided, being an increase of 11, 6, and 43, respectively. The education of the young Maharajah (*see* last Report, p. 186) continued to progress very satisfactorily.

Berar. The Berar schools increased from 404 to 431; of the latter number 358 were of the lower class, which are favourably reported on.

British Burmah. Considerable attention is paid to education in British Burmah, and during the year under review some very important measures were carried out, of which the principal were—the organization of an efficient inspecting agency for the Province and for districts, the opening of the Rangoon High School, the establishment of a number of middle and lower class Government schools, the extension of Government aid, in the shape of money and teachers, to a large number of private schools, and the commencement of a scheme which had been long contemplated for the improvement of the indigenous monastic and lay schools.

In 1872–73 there were 7 Government schools in the Province, which increased in the year under report to 21; 14 missionary schools received aid from Government in the former year, whilst the number in 1873–74 was 24. Other aided schools rose from 8 to 103; and 833 monastic schools were brought into connexion with the Government system of education. By these measures the number of children over whose education Government exercises some sort of influence, more or less direct, increased from 2,817 to 26,618.

The indigenous schools form a very prominent feature of the educational system of Burmah. At the monastic schools, at all events, a very fair education is imparted. The Phoongyees, or members of the Burmese Religious Order, perform the office of teachers, not as a duty imposed on them, but as a function incidentally connected with their position, from the performance of which they derive great merit. The students are entirely under the control of the Phoongyees; they are taught deference to their superiors and obedience to their teachers; humility is inculcated; they see the virtues of self-denial in the life led by their religious masters; and in their own severance from home and worldly affairs, as well as in the adoption of the yellow robe and the shaven head, they perceive the importance that is attached to the acquisition of learning. The day on which a boy enters the monastery, and that on which he rejoins the world, are epochs in his life. It has been a matter of anxious consideration to the Government to devise means which should remedy the defects in these institutions without endangering the valuable position they hold in forming the character of the people. The problem, it is hoped, has now been solved.

The system is briefly as follows. Burmese officers have been appointed to six districts; as regards the indigenous schools which receive direct aid from the State, these officers perform the duties of Deputy Inspectors, while with regard to the

monastic schools, and schools which receive indirect State aid, they hold the position merely of public examiners. Any head of a school, monastic or secular, may apply to the examiner to visit his school and examine the pupils. Rewards are given to every child who can pass a certain fixed standard of examination, the value of the rewards increasing with the strictness of the standard. Each standard comprises two subjects, language and figures, and a separate reward is given for passing in each subject. The master, if he will take it, receives a reward equal to that given as prizes to the pupils. A double payment is awarded for girls who pass the examination.

During 1873–74 the public examiners visited and examined 928 schools (of which about six-sevenths were monastic) with 23,112 pupils. Of this number 3,585 passed in one or other of the prescribed standards, and prizes were awarded to the extent of 449*l.* 4*s.* 302 girls were examined, and 170 obtained rewards. An inspection of the returns of the examiners shows that a very fair uniformity has been observed in the amount of strictness with which the standards were applied. The average per-centage of prize-winners upon the number of those examined was 15·5, and the several per-centages for five districts for which the returns have been received vary from about 12 to 20 per cent. This per-centage may be considered a high one, seeing that the system has not been in work for a full year, and that little time has been given to the teachers to bring these children up to the prescribed standard.

It is encouraging to find that, although the scheme had been carried into only 6 out of 13 districts, no less than 800 monastic schools, representing some 20,000 pupils, had elected to be examined by the public examiners.

In addition to the indigenous schools receiving indirect aid from the State in the shape of rewards for results, there were 13 schools of this class—one of them being a monastic school—which were specially selected for improvement, and received aid in the shape of a trained assistant teacher from the Government Training School. In some instances, a small salary has also been given to the head teacher, to help out the small donations and presents he receives voluntarily from the people. Ten applications were received from monastic schools for assistance in this form.

The desire of the Burmese to acquire the English language becomes more marked every year. During 1873 two lads were sent to England to complete their education, the first ever sent by their relations without extraneous aid.

(Native States.) Turning to Native States, we find in them also generally satisfactory accounts of progress.

In the States which are in political relation with the Government of Bombay much attention was given to the education of young chiefs and other youths of the upper classes.

Kutch. In Kutch there were 39 schools (including seven new ones) and 2,412 scholars. The Rao appointed the Deputy Educational Inspector tutor to the young prince and princess, both of whom are reported to have made very creditable progress in their English studies. A Mahomedan school was founded at Bhuj, and was commenced with funds raised by Kutchees of Bombay, aided by the Rao. The Bombay Government expressed much gratification at this circumstance.

Akulcote. Remarkable progress was made in some of the Hindustani schools of Akulcote.

Kolhapore. The young Rajah of Kolhapore joined the anglo-vernacular school, and was making fair progress in his studies. Four other young chiefs were placed there to be educated with him. Education was making rapid advances in this State. It contained 840 schools, with 6,699 pupils; and the schools were reported to be in a most efficient condition.

Kattywar. The Rajkumar College had an increase of seven pupils during the year. The boys showed great proficiency in their studies, while their general conduct was reported to be good, and a healthy and manly spirit appeared to be encouraged by the college rules. This institution owes its origin to the liberality of the Kattywar chiefs, but its usefulness was becoming extended beyond the limits of that Province.

Travancore. In Travancore the handsome building provided for the Trevandrum College and High School was opened by the Maharajah in March 1873, and the institution continued to flourish. Twenty-seven new vernacular village schools were opened, and the attendance increased from 4,959 to 5,337.

Rajpootana States. Progress is reported, with scarcely a single exception, in all the principal Rajpootana States, which is the more satisfactory when the extreme conservatism of the people and the disfavour with which education has always been regarded by the better class of Rajpoot chiefs and thakoors are considered.

In Jeypore the progress of the Maharajah's College has been remarkable. The number of pupils, which at the close of 1872–73 was 614, increased during 1873–74 to 804. Of nine students from this college who competed at the matriculation examination of the Calcutta University, seven were successful. Several new zillah vernacular schools were opened during the year.

A great improvement was reported in most of the Ulwur schools.

The attendance at the Oodeypoor school increased. The English class, which is entirely a voluntary one, increased from 16 to 53.

Education was also progressing fairly in the States of Central India. Central India States.

MAHOMEDAN EDUCATION.

The important question of Mahomedan education has occupied the serious attention of the Government of India. In 1871 that Government circulated a Resolution on the subject among the Local Governments and Administrations, and their several reports were reviewed together in an Educational Letter to the Secretary of State dated the 30th June 1873. It would appear from the reports that many of the disadvantages under which Mahomedans labour with respect to higher education may be traced to their sources in the earlier stages of our system. It was found that, wherever the ordinary vernacular of the country is read and written in the Hindustani or Urdû character, there Mahomedans have generally occupied their proper position in the primary and secondary schools founded or aided by the State. In the Punjab, North-West Provinces, and Oude, where the whole course of primary education is so shaped as to favour the Mahomedan at least equally with the Hindoo, the comparative attendance of Mahomedans is on the whole rather above than below the proportion which all Mahomedans bear to the total population. On the other hand, in Provinces where they are scattered and are not numerous, where they mostly talk a different language from that of the majority, or where their teaching at any rate is in a different tongue and according to entirely separate traditions, their claims have been often inevitably disregarded.

The peculiar obstacles which keep them apart from our school system grow stronger when the time arrives for emerging from the elements into a more advanced stage, and it is in the higher schools, the colleges, and the universities that the absence or backwardness of Mahomedans appears most remarkably.

The Government of India, with a view to remedy this condition of things, enunciated the principle that the State should so apply its educational apparatus and aid as they shall best adjust themselves to existing languages and habits of thought among all classes of the people, without diverging from its fixed and final purpose, the better diffusion and advancement of real knowledge in India. The Government was glad to find that this principle appeared to be understood by all the Administrations, and to be generally accepted by the people, by none more openly than the leading Mahomedans of India. Judicious endeavours were being made in the several Provinces to diminish as far as possible existing inequalities in the distribution of State aid, and to place the Mahomedans on a more even footing with the general community throughout the whole course of public instruction.

The collegiate instruction in the Calcutta Madrassa was to be remodelled and reinforced, while the Mohsin endowments which support the Hooghly College will be employed wherever in Bengal seems most advantageous for encouraging and extending education among Mahomedans.

Both these Madrassas somewhat increased their numbers during 1873–74; the returns show an addition of 19 pupils in the former and of 8 in the latter. The total number of Mahomedans in Bengal receiving instruction in schools connected with the Education Department was about 80,000, against 301,000 Hindoos; and of that number, about 70,000 were in the lower vernacular schools.

The Madras Government established, at the principal centres of the Mahomedan population, ten elementary schools, and corresponding classes in other schools, where instruction is given in the Urdû language through appropriate text-books.

In Bombay measures were in contemplation for the endowment of an University Professorship of Arabic and Persian. There were in this Presidency 103 Urdû schools or classes for Mahomedans; but the Inspectors say that there is absolutely no desire for education among the masses of that section of the population. Even in Sind, where the Mussulman element is so much in excess of other denominations, the number of Mahomedans attending our schools is not quite half that of Hindoos.

The proportion of Mahomedans in the Government schools of the North-West Provinces shows a readiness on their part to accept the education offered by the State up to the matriculation standard at least. In the colleges the proportion is much less; on the other hand, in the special departments of law, medicine, and engineering, the Mussulman element is decidedly stronger. This circumstance

seems to indicate that the Mahomedan pursues his collegiate studies with a view to some definite profession, while the Hindoo is content if they prove generally useful to him in the search for employment.

FEMALE EDUCATION.

With regard to female education, the reports are various for different parts of India. The accounts from Bengal are not very encouraging.

In Madras the number of girls' schools rose from 186 to 237, while the number of girls under instruction in all schools connected with the Department increased from 14,330 to 17,113. A re-organization of the Female Normal School was carried out; the caste restriction was removed, and it is now open to female students of all classes and sects, provided they are of good character and respectable social standing. The Madras Government, having in view the great social and moral importance of female education, have decided to make the work their more immediate care, and to relieve municipal and local funds from all charges on account of it.

There was, on the other hand, a falling off in Bombay. The Inspector doubted whether the expenditure on this object was advisable while education for boys is still so much wanted, but the committees were generally in favour of continuing the schools. Native gentlemen at times evince considerable interest in these institutions. The Belgaum School is maintained at the sole cost of the municipality.

Female schools in the Punjab increased from 333 to 341. The system of female education there is at present on a far better footing, and the amount of real instruction given is greater, than at any previous time. There is not indeed the least indication of any real desire on the part of the natives to elevate the position of the sex, but (as the Lieutenant-Governor observes) it is something that they should have learnt to *tolerate* the education of their daughters.

The numbers in the North-West Provinces show a slight increase, but the state of the schools was not more promising than before, and it was a question whether any appreciable advance had been made in female education in the last two years.

There is stated to be almost no demand for female schools among the natives of Oude; they remove their daughters on the most trivial grounds, and contribute nothing towards the expense of educating them. The Chief Commissioner thinks that the labours of the ladies of the Zenana Mission will do more in this direction than all our schools.

Primary schools for girls in the Central Provinces are not favourably reported on, and though some of them are doing good, they are stated to be, generally speaking, very much in advance of the wishes of the people.

Among the educational measures of the year in British Burmah was increased encouragement of female education by Government. One school was opened in Rangoon, and the number of aided girls' schools increased from 6 to 16. The Rangoon School has been a fair success; it is managed by a committee, and the parents are consulted in matters affecting its interests. There is no attempt to teach English, which would be perfectly useless to Burmese girls; but the object in view is to give them a really good Burmese education.

LITERATURE AND THE PRESS.

The general tone of the vernacular press in Bengal during 1873–74, though disfigured by occasional excesses, was decidedly loyal and well-disposed towards Government, while at the same time it was distinguished by a remarkable independence of criticism. It has consistently recognized and appreciated the exertions made by Government in averting famine from the country, and evinced the utmost gratitude for the results attained.

The composition of original Bengalee literature has made regular and steady progress for years past, and has now gained a sure footing.

Native literary effort was reported to be lamentably deficient in the North-West Provinces.

No information of interest has been received regarding literary progress in other parts of the country.

XLI.

POLITICAL.*

The relations with the tribes on the North-East Frontier were, on the whole, highly satisfactory. NORTH-EAST FRONTIER.

A gradual improvement is noticed in the civilization and material condition of the inhabitants of the Khasi and Jynteah Hills. At Shillong and in its vicinity the people are described as becoming rich, and trade was on the increase.

In the Tributary Mehals of Cuttack there was a general diminution of serious crime, accompanied by an increasing activity in trade, extension of roads throughout the country, and the establishment of schools. A favourable testimony is also borne to the personal character and the capacity for business of the various Chiefs.

On 1st June 1873, the Maharajah of Sikkim arrived in Darjeeling to visit the Lieutenant-Governor. Nothwithstanding the friendly relations that have been maintained with Sikkim since 1862, this was the first time that the Maharajah had entered British territory. The Lieutenant-Governor received him in open durbar, and expressed to him the pleasure with which he would convey to the Governor General the news of his visit, and the hope that it might result in the greater development of trade and in more familiar intercourse between the two countries. SIKKIM.

The North-West Frontier is reported never to have been so tranquil since the annexation of the Punjab as it was in 1873–74. The only events which disturbed the general peace were two small raids on the Hazara border. The relations of the British Government with the wild border tribes were most cordial. There were several encounters among independent tribes in the vicinity, but in every case they scrupulously abstained from molesting British territory. NORTH-WEST FRONTIER.

The principal events of 1873 in Cashmere were—the progress effected in the translation into Cashmeree of works of useful knowledge, the arrangements made for the improvement of the breed of horses and cattle, the promotion of tea cultivation and silk manufacture, the reform of the police arrangements of Srinuggur, and the substitution of a regular settlement of land revenue in cash, fixed for three years, for the farming system which previously obtained. All these are gratifying signs of the interest taken by the Maharajah in the administration. CASHMERE.

The policy of supporting the independence of Affghanistan was maintained, and a present of 100,000*l.* and 20,000 rifles was made to the Ameer. The installation of Abdoolla Jan, the younger son of Shere Ali, as heir apparent to the throne of Cabul was carried out with great ceremony and rejoicing. The eldest son, Yakoob Khan, and several influential Sirdars, were much dissatisfied with the nomination. The subsequent course of events in Affghanistan is well known, but does not come within the period of this Report. AFFGHANISTAN.

Passing next to the States subordinate to the Rajpootana Agency, their administration, with one or two exceptions, appears to have been progressive. Considerable success attended the efforts of Government to pacify the borders which have long been harassed by the inroads of gang robbers and border outlaws. Mail robberies and dacoities are also on the decrease. RAJPOOTANA.

In the Meywar State there was observed, for the first time for many years, a tendency to cordiality and co-operation between the Maharana and his thakoors, the absence of which in the past has stood much in the way of securing a vigorous and healthy administration. The first fruits of these changes were the introduction of improved measures of sanitation and the general diminution of crime.

The Jeypore State continued to maintain its high and deserved reputation for civilization and advancement. The usefulness of its institutions and the munificent liberality with which they are supported cannot be overrated, while the untiring and successful efforts of the Maharajah himself to promote the prosperity of the State and the happiness and well-being of his subjects are beyond all praise.

In Marwar, since the accession of the present Maharajah in March 1873, affairs have made steady progress. Regular courts of justice have been established, and were reported to be working satisfactorily; medical charities have been provided; a land settlement was being arranged; and measures were organized by the

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* The state of education in Native States has already been noticed in the preceding section.

Maharajah for the repression and better control of the criminal tribes of his State.

The Kotah State having become so utterly embarrassed and disorganised as to render the active interference of Government necessary, the experiment was adopted of appointing a native gentleman to administer it. The measure appeared likely to prove quite successful, and beneficial reforms were being introduced in every branch of the administration.

The government of Ulwur, owing to the maladministration of the Chief, was being energetically carried on by Captain Cadell. The people were contented and happy, and seemed to appreciate the efforts made by our officers to improve their condition. The financial condition of the State, which prior to the interposition of Government had been hopelessly ruinous, was most promising. Irrigation and other reproductive works were receiving a large share of attention.

The Bickaneer administration is unfavourably reported on. General discontent prevailed amongst the principal thakoors and the subjects of the State generally.

CENTRAL INDIA. In the States of Central India order was undisturbed, and the friendly relations with the British Government were pleasantly maintained.

The finances of the Indore State were in a most prosperous condition. The cotton mills were in full work, and were paying five per cent. on the original cost. The city of Indore was being improved and drained, roads were marked out, and a competent engineer was engaged to superintend the different works. Holkar made frequent excursions into the districts near the capital, examining village accounts, allowing remissions where collections had failed, and stimulating the progress of irrigation and cultivation.

HYDERABAD. The Nizam of Hyderabad being a minor, a scheme was arranged by the Ministers in communication with the Government of India for his education under the supervision of an English gentleman of high character and qualifications. Sir Salar Jung assured the Government that they might rely on the best efforts of himself and his colleague being exerted to promote the important object in view, and that no interference would be exercised with the legitimate position and influence of the tutor.

KUTCH. The revenue of Kutch was estimated at 235,930*l.*, which was considerably below the average, the decrease being attributed to unfavourable seasons. Six murders and four dacoities were reported, but, since the suppression of the band of Deda outlaws by the effective action of the Rao, no further case of dacoity occurred. No return with regard to other offences was furnished, but assurances were given of the universal freedom of Kutch from all crime except theft. There is little produce in the Province, so that the trade consists principally of imports. The port of Mandavi possesses no less than 244 native craft.

MAHEE KANTA. There was an increase of crime in Mahee Kanta. Considerable progress was made in public works; in particular the construction of a public library at Sádra is noticed as a sign of the growth of intelligence.

KATTYWAR. The improvement of the police administration of Kattywar has engaged attention ever since the suppression of the Wagheer disturbances in 1867-68. About the beginning of 1873, the Chiefs, after much pressure, agreed to contribute a sum of Rs. 18,000 annually towards the employment of a special police officer and establishment, under the orders of the Agency, to assist them in the suppression of outlawry and dacoity, and to pursue criminals without impediment from the boundaries of the numerous jurisdictions which divide the Province. They at the same time undertook to carry out certain reforms in their internal police management.

BARODA. In consequence of certain representations as to the Gaekwar's system of administration, the Government of India appointed a Commission of Inquiry, which assembled at Baroda in November 1873, and issued its report in March 1874. As the Government did not pass any decision on the matter during the year under review, it will be more appropriate that the whole subject should be treated in next year's Report in connexion with recent events.

JUNJEERA. The affairs of Junjeera were reported to be generally mismanaged. The Nawab bound himself by an agreement to follow the advice of the Bombay Government; he failed, however, to carry out this condition in its integrity, though he gave all proper assistance to the Political Agent and his Assistant in the exercise of their criminal jurisdiction. It is satisfactory to learn that he has established a regular system of education in his territory, and also has introduced vaccination.

KOLHAPORE. The financial condition of Kolhapore was satisfactory. A sum of 42,890*l.* was expended during the year on public works. One large bridge over the Panchganga

river was completed, and the foundations of another were commenced. Considerable sums were also spent upon roads. A new scheme of municipal taxation was introduced into the town of Kolhapore, which seemed likely to work well, and to yield an annual income of about 2,500*l.* The town contains a population of nearly 40,000, and is well situated for purposes of trade.

SAWUNT WAREE.

In Sawunt Waree the year was a prosperous one. The work of the police was fairly successful, and there was a decrease in crime.

TRAVANCORE.

In Travancore there was a decided diminution of crime. The season was generally propitious. The gross revenue of the year reached 530,047*l.*, and was, with the exception of the preceding year, the highest on record. The expenditure amounted to 527,806*l.*, which was 21,560*l.* less than that of 1872–73. The amount expended on public works was 91,439*l.* The total value of the exports was 750,106*l.*, and of the imports 477,819*l.*

COCHIN.

In Cochin, also, crime decreased. The receipts of the year were 120,691*l.*, and the disbursements 105,547*l.*, being a decrease under the former head of 4,767*l.*, and under the latter of 5,247*l.* The expenditure on public works was 14,556*l.*; the average expenditure of the five preceding years had been 18,569*l.*

NORTHERN ARRAKAN.

The hill tracts of Northern Arrakan were undisturbed by any raids from trans-frontier tribes. The condition of the tribes within our territories has continued to improve, in consequence of the comparative quiet which now obtains; and cultivation is steadily increasing. Our relations with the tribes beyond our administrative frontier improve year by year. The Khoons, formerly the most troublesome tribe in the neighbourhood, are now engaged in friendly intercourse and trade with our people. Messengers arrived during June from the Shindoos, who inhabit a tract of country considerably to the north of the Arrakan tracts, and expressed the desire to enter into friendly relations with the Superintendent. There is, in fact, every reason to think that the principles laid down three years ago for the administration of these hill tracts are proving very successful in their practical results.

SIAM.

On the 4th January 1874 a treaty was concluded between the Government of Siam and the Governor-General of India, having reference to the State of Zimmay, a tributary territory in the dominions of the King of Siam. In the Zimmay State are several valuable teak-forests, and this timber trade is largely in the hands of British subjects from the Tenasserim Division of British Burmah. The absence of protection to life and property, and the unsatisfactory condition of the State in respect to the rights over the forests and the settlement of disputes arising therefrom, made it most advisable in the interests of the Chief of Zimmay, as well as of the Siamese and Indian Governments, that some clear understanding should be arrived at on these points. The treaty provides for efficient means being taken for the repression and punishment of robbers and marauders. Passports will be granted to British subjects wishing to trade with Zimmay, and the possession of these gives certain privileges in the establishment of their civil claims. Provision is made for the establishment by the Siamese Government of a Civil Court in Zimmay, and a British officer may be deputed to be present in court; and measures are to be introduced to regulate the action of the proprietors of teak-forests in granting permits for felling and dragging timber.

The son of the Chief of Zimmay paid a friendly visit to the Chief Commissioner during the year, and stated the desire of the Chief to maintain the friendly relations which have always existed between his State and the British Government.

XIV.

MILITARY.

NOTHING occurred of a military nature in connexion with the moral and material progress of India.

XV.

SURVEYS AND STATISTICS.

THERE is nothing of importance to record under this head.

India Office,
August 1875.

HENRY HILL.

Memorandum on recent Fiscal Legislation in India.

1. *Sea-Customs (excluding Salt and Opium).*

For some years before the mutiny, the duties on goods imported into or exported from India by sea were regulated by separate Acts for the three Presidencies; namely,— Customs Tariff.

Bengal: Acts XIV. of 1836, IX. of 1845, and VI. of 1848.
Madras: Acts VI. of 1844, IX. of 1845, and VI. of 1848.
Bombay: Act I. of 1852.

The duties in Arracan, Pegu, Martaban, and Tenasserim, were prescribed by Act XXX. of 1854.

In 1859 the tariff was revised, and since that year no less than thirteen Acts have been passed, more or less modifying the customs duties. The following is a brief account of the principal changes effected, the details being given in the Appendix. Appendix, No. 1.

Up to 1867 the system on which the schedules of the Customs Acts were prepared was to declare certain articles free, certain others liable to special rates, and all unenumerated articles to one general rate.

By the tariff existing in 1857, the following articles might be imported free: animals, books (if British), bullion and coin, coal and coke, &c., grain (except rice at Madras), ice, precious stones and pearls, machinery (at Bombay only); 5 per cent was to be paid on all British goods included under marine or naval stores, metals, woollens, and cotton and silk goods, foreign manufactures paying 10 per cent.; foreign books were to pay 3 per cent. *ad valorem*; cotton thread, twist, and yarn, $3\frac{1}{2}$ if British, 7 (at Bombay 10) if foreign; certain drugs and spices, and tea, paid 10 per cent., coffee and rattans $7\frac{1}{2}$, malt liquor 5, wines and spirits a specific duty, and all other manufactured articles 5 per cent. *ad valorem*. Tobacco, which in Bengal was unenumerated, paid 10 per cent. at Madras, and variable rates in Bombay; and the tariff at those two Presidencies differed in one or two other respects from that for Bengal. In exports, bullion and coin, precious stones and pearls, books printed in India, animals, raw cotton if sent to Europe, the United States, or British possessions out of India, sugar and rum to British possessions, were declared free; the last-mentioned articles paid special rates if sent from Bengal or Madras to other than British possessions; grain paid half an anna per maund (rice from Madras one anna); indigo, 3 rupees per maund; lac, 4 per cent. (from Madras only 3); silk and tobacco, special rates; spirits from Bombay, 9 annas a gallon; and all other Indian articles, 3 per cent.

The Act of 1859 (No. VII.) superseded these varying tariffs, and applied to the whole of India. It declared free the importation of raw cotton, grain and pulse at all Presidencies, all books, and machinery for improving the communications or developing the resources of the country, in addition to the articles previously so admitted; duties of 20 per cent. were imposed on apparel, coffee, groceries, jewelry and plate (not jewels), perfumery, spices, tea, and tobacco; the duty on wines and spirits was doubled, and malt liquor was taxed 4 annas a gallon; 5 per cent. was laid on all cotton thread, yarn, or twist; and 10 per cent. on other articles. At the same time, the export of raw cotton or silk, spirits, sugar, and tobacco was declared free; grain was charged 2 annas a maund, and lac 4 per cent., from all Presidencies; other articles remained as before.

In 1860 an Act (No. X.) was passed, by which wool, flax, hemp, jute, raw hides and skins, maps, prints, and works of art, agricultural implements, seeds for gratuitous distribution, carriages, uniforms and accoutrements (for private use by public officers), guano and manures, were added to the free list of imports; the 20 per cent. duties on tea, coffee, &c., and the 5 per cent. on cotton, thread, &c., were removed, these articles paying 10 per cent. as unenumerated; tobacco, instead of 20 per cent., was to pay 8 annas a seer if unmanufactured, or 1 rupee

if manufactured. Among exports, tea, coffee, wool, flax, hemp, jute, raw hides and skins, and teak from Pegu, &c., were declared free; and a duty of 2 rupees per maund was imposed on saltpetre.

The tariff was again revised in 1862 (by Act XI.). In the schedule of imports, paper and bottles were added to the free list, and carriages removed. The duty on malt liquors was reduced to two annas, and on light wines to one rupee per imperial gallon; tobacco was made to pay 20 per cent., piece goods 5, and twist $3\frac{1}{2}$ per cent. *ad valorem*. Coal and iron were added to the free list of exports.

By a supplementary Act (XXIII. of 1862), the machinery admitted free was limited to such as is used exclusively for agriculture, navigation, mining, manufacture, or railway purposes; spirits used exclusively in arts and manufactures or chemistry were to pay 10 per cent. on importation, and firewood was admitted free.

Act XXVI. of 1863 reduced the import duties on iron (not ironmongery, cutlery, or hardware) to 1 per cent., on wines and liqueurs to 1 rupee, and on malt liquor to 1 anna per gallon.

Act XXIII. of 1864 reduced the duty on tobacco from 20 to 10 per cent., and on all unenumerated articles imported from 10 to $7\frac{1}{2}$ per cent.

By Act XVII. of 1865 hops were admitted on paying 1 per cent. Export duties were at the same time imposed of 2 per cent. on sugar, silk, and raw hides and skins, and (by removal from the free list) of 3 per cent. on tea, coffee, wool, and jute; the duty on grain was raised from 2 to 3 annas the maund, and that on saltpetre reduced from 2 to 1 rupee.

This Act was soon cancelled by Act XXV. of 1865, the duties reverting to the former rates, except as regarded importation of hops and exportation of saltpetre.

Act XVIII. of 1866 removed saltpetre from the export schedule, by which means it became liable, as an unenumerated article, to a tax of 3 per cent. *ad valorem*.

In 1867, the system of the tariff was revised, all specified articles being taxed, and all those unenumerated becoming free. The effect was to remove from the liability to pay import duty upwards of 40 articles, and from the export duty 88 articles, among which was saltpetre. In imports, machinery of all kinds, hops, and ebony, and some other woods, were among the articles made free; cotton thread, twist, yarn, and piece goods remained as before, the valuations, however, being reduced; on canvas, carpets, china grass cloth, oil and floor cloth, and shawls, a duty of 5 per cent. was laid; a tax of $1\frac{1}{2}$ rupees per gallon was imposed on sparkling wines and liqueurs; telegraph materials, if of iron, were taxed only 1 per cent., and on some 60 or 65 classes of articles the duty of $7\frac{1}{2}$ per cent., formerly laid on unenumerated articles, was imposed. Among exports the only articles taxed were cotton manufactures, dressed hides and skins, oils, seeds, shawls, and spices, which were to pay 3 per cent., grain 3 (instead of 2) annas a maund, and indigo and lac, which remained at their former rates.

Act XI. of 1868 freed the importation of all timber and wood.

On the 18th March 1869, the tariff values of cotton goods, and of the principal metals, were reduced about 15 per cent.

Act XVII. of 1870 removed from the list of imports paying duty, blacking, carpets, China and Japan ware, felt, grass and other China cloth, horns, jute manufactures, lac, marble, shawls, tallow and grease, trunks, materials for carriages, chemicals, and telegraph materials, but it seems probable that some of these, though not specifically mentioned, paid under other denominations. Corals and matches were included as paying $7\frac{1}{2}$ per cent., and steel rails were, like iron, admitted with a duty of only 1 per cent.

By Act XIII. of 1871 all materials for permanent railway were admitted for 1 per cent., and asphalt was charged $7\frac{1}{2}$ per cent.

The only subsequent alterations have been the removals, by notifications of the Governor General, dated the 4th of January 1873, and 27th of November 1874, of the export duties on wheat and lac dye.

Appendix, No. 2.

Appendix, No. 3.

During the period to which the preceding narrative refers, the imports of merchandise have risen from 14,194,587*l.* in 1856–57 to 32,593,609*l.* in 1873–74, and the exports also have more than doubled, having been 25,338,453*l.* in 1856–57, and 54,960,778*l.* in 1873–74. Taking the averages of each group of five years, it will be seen that, whatever fluctuations may have occurred in particular years,

the progress of trade has for 40 years been constant, and occasionally very rapid. In round numbers the imports of merchandise were, in the five years ending— Progress of Trade.

1838–39	5 millions sterling.	1858–59	15½ millions sterling.
1843–44	7¾ „ „	1863–64	24 „ „
1848–49	9 „ „	1868–69	31¼ „ „
1853–54	11 „ „	1873–74	32¼ „ „

(The less rapid progress in the last group is partly accounted for by the reduction of the tariff values effected in 1867 and 1869). The exports during the same quinquennial periods have been, in the five years ending—

1838–39	11 millions sterling.	1858–59	25 millions sterling.
1843–44	13¾ „ „	1863–64	42 „ „
1848–49	15½ „ „	1868–69	55¾ „ „
1853–54	19 „ „	1873–74	56¼ „ „

Taking the trade as a whole, therefore, it has greatly developed, in consequence or in spite of the alterations effected in the tariff.

The receipts by Government as customs duty on imports by sea from, and exports by sea to, foreign countries, amounted in 1856–57 to about 980,000*l.*, in 1857–58 to 1,030,000*l.*, and in 1858–59 to 1,500,000*l.* Under the revised tariff of 1859 they rose in 1859–60 to about 2,640,000*l.*, and in 1860–61 to upwards of 3,000,000*l.* The effect of the exemptions under Act X. of 1860 was not at once apparent, for the duties have never realised so large a sum as in that year (1860–61) which immediately followed the passing of the Act. The fall was, however, rapid in the ensuing years; the receipts in 1861–62 were less than 2½ millions, in 1862–63 about 2,150,000*l.*; from which point they gradually dropped, till in 1866–67 they were about 1,840,000*l.* The revision of 1867 led to an immediate rise to about 2,350,000*l.* in 1867–68, since which date they have varied between 2,230,000*l.* and 2,500,000*l.* Customs Duties. (For the exact figures *see* Appendix, No. 4.)

The exact effect of each important change in the tariff will be more readily perceived by referring to the trade in each of the principal articles affected, although in many cases allowance has to be made for special circumstances connected with the trade in particular branches. An endeavour has been made, in the Appendix, to shew the quantity, value, and duty, in the case of each of the most important articles of import and export in the last 17 years, but in some cases the information is deficient, and in a few the figures given are such as to suggest doubts of their accuracy.

The value of the cotton piece goods imported into India in 1856–57 was about five millions sterling. Owing, it may be presumed, to the influx of British troops into India in 1858, it suddenly rose to eight millions in 1858–59, and 9½ millions in 1859–60. In the latter year the duty on British goods was raised from 5 to 10 per cent. *ad valorem*, and the value of imports fell off gradually, till in 1862–63 it was little over 8¼ millions. The reduction of the duty in that year to 5 per cent. led to an immediate increase to nearly 10½ millions in 1863–64, whence it steadily rose till 1868–69, in which year it exceeded 16 millions. The next year the tariff valuation was reduced by 15 per cent. (equivalent to a reduction of 16,000,000 to 13,600,000), and accordingly in 1869–70 only 13½ millions were imported. The imports in 1873–74, 15 millions, are rather above the average of the last five years, and are equivalent to an importation of 17¾ millions, at the valuation of 1868. The revenue derived by the Government from the duty on cotton piece goods averaged 320,000*l.* from 1856–57 to 1858–59. Under the 10 per cent. duties, it amounted to 960,000*l.* in 1859–60, 930,000*l.* in 1860–61, and 860,000*l.* in 1861–62. The reduction to 5 per cent. caused a drop to 420,000*l.* in 1862–63 and 1863–64; but in the six years from 1867–68 to 1872–73 it averaged 750,000*l.*, which is as nearly as possible the exact sum received in 1873–74. Imports :— Cotton Goods. Appendix, No. 5.

The imports of cotton thread, twist, and yarn have fluctuated in the same manner as those of piece goods. The amount imported in 1856–57 and 1857–58 averaged one million sterling, and the duty 40,000*l.* In the eight years from 1866–67 to 1873–74, it has averaged 2¾ millions, and the duty thereon about 95,000*l.* The quantity has risen from 20 million pounds in 1856–57 and 1857–58 to about 31 million pounds in 1873–74. Cotton Yarn, &c. Appendix, No. 6.

The quantity of raw silk imported into India in 1856–57 was exceptionally low; the average of the six preceding years was 1,200,000 lbs., valued at 250,000*l.* It rose to 1,850,000 lbs., valued at 500,000*l.*, in 1858–59, when the duty, instead of Raw Silk. Appendix, No. 7.

being 5 per cent. on British merchandise and 10 per cent. on foreign, was made 10 per cent. all round, a change which in the case of silk would probably produce less result than in most cases; the imports averaged 1,400,000 lbs., valued at 380,000*l.*, during the five years that that rate prevailed. In 1864–65 the tax was reduced to 7½ per cent., and the imports, which had dropped in that year below 1,300,000 lbs., rose at once; in the last six years they have averaged above 2,000,000 lbs., valued at about 770,000*l.* The duty, which must have been about 13,000*l.* before 1856–57, was nearly 19,000*l.* in 1857–58 and 28,000*l.* in 1858–59. Under the 10 per cent. rate it averaged nearly 38,000*l.* In the last few years the amount is mixed up with the duty received on silk goods, but at 7½ per cent. it must have exceeded 57,000*l.*

Silk Goods. Appendix, No. 8.

The imports of silk goods averaged 120,000*l.* from 1856–57 to 1858–59, and the duty thereon 11,000*l.* From 1859–60 to 1861–62 the duty was made 10 per cent. on British as well as foreign goods, and in those three years the imports averaged 230,000*l.*, and the duty 23,000*l.* In 1862–63 the duty on piece goods was reduced to 5 per cent., and in 1864–65 that on other articles to 7½ per cent. The importations of the last eight years have exceeded 480,000*l.* on an average, and the duty 26,000*l.* The imports in 1873–74 were valued at more than 600,000*l.*

Woollen Goods. Appendix, No. 9.

For the five years preceding the mutiny, the trade in woollen goods had been slack in India, the imports averaging only 150,000*l.*, on which a duty of less than 10,000*l.* was realised. In the next three years, however, the imports were double that amount on the average, those in 1859–60 being nearly 360,000*l.* In that year the duty was raised from 5 to 10 per cent., and the importations of 1860–61 and 1861–62 were less than 235,000*l.*, with a duty of 23,500*l.* The rate payable on piece goods was reduced to 5 per cent. in 1862–63, and the imports rose to 611,000*l.* in 1863-64, and to the remarkable amount of 868,000*l.* in 1864–65, the duty being about 31,000*l.* and 43,000*l.* respectively. In 1864–65 the tax on other manufactures than piece goods was reduced to 7½ per cent., but the market had become overstocked, or the value had fallen, and the importation was under 600,000*l.* in each of the next three years. It has since varied from 513,000*l.* to 760,000*l.*, the average of nine years being about 620,000*l.*, and the duty about 32,000*l.*

Machinery. Appendix, No. 10.

Machinery has to a great extent been free from duty since 1859–60, and at Bombay before that date. The imports have usually been between 400,000*l.* and 600,000*l.*, but in the two years 1859–60 and 1860–61 they were 870,000*l.*, in 1867–68 upwards of a million, in 1868–69 nearly 800,000*l.*, and in 1873–74 they again rose above a million.

Railway Materials. Appendix, No. 11.

The importation of railway materials having been dependent on other than merely trade questions, it is unnecessary to enter into details on that point. The total imports have averaged about 1¼ millions sterling since 1856–57, but, as the main lines have been completed, they have fallen off from 2,400,000*l.* in 1867–68 to barely 430,000*l.* on the average of the last three years, omitting the stores imported by the Government for the construction of the new State Railways.

Metals. Appendix, No. 12.

The imports of other manufactured metals averaged 430,000*l.* from 1856–57 to 1863–64; in 1863–64 the duty on iron was reduced from 10 to 1 per cent., and in the following year that on other metals from 10 to 7½ per cent. The importation in 1863–64 and the two next years averaged 640,000*l.*; but in 1867–68 and 1868–69 it exceeded 1,100,000*l.* The valuation was reduced in 1869 by about 15 per cent., and the imports of the last five years have averaged 870,000*l.*, equivalent to 1,000,000*l.* at the rates of 1868. In their raw state metals were imported to the value of 1 million in 1856–57 and 1857–58, 2 millions from 1858–59 to 1861–62, 2½ millions in 1862–63, and 3 millions in 1863–64 and 1864–65. For the next five years they averaged about 2½ millions, and for the five years since the reduction of valuation they have steadily fallen off, from 2,650,000*l.* in 1869–70 to 924,000*l.* in 1873–74, the average being about 1,570,000*l.* The duty on railway materials is in the earlier years included with that paid on other metals, and, even where it is apparently separated, the amount does not accord with the rate of duty. Taking all metals and their manufactures together, the amount of duty received in 1856–57 was 144,000*l.* When the 10 per cent. duty was imposed in 1859–60, it rose (for four years) to an average of about 400,000*l.*, but of this the portion paid on railway stores must have been repaid by the Government in the shape of guaranteed interest. The reduction of the duty on iron to 1 per cent. led to a falling-off, and the receipts averaged only about 230,000*l.* down to 1869–70. Since that date they have diminished by about

40,000*l.* annually to 1872–73, in which year and in 1873–74 they were little above 100,000*l.*

The value of the malt liquor imported into India was about 240,000*l.* in 1856–57 and 1857–58, on which, however a 5 per cent. duty appears to have realised only 6,500*l.* in the former, and 9,300*l.* in the latter year. With the great addition to the European forces, the imports rose in 1858–59 to 425,000*l.*, on which the duty realised was 17,300*l.* In the following year the duty was raised; the imports were 3,850,000 gallons, valued at 540,000*l.*, on which a duty was imposed of 4 annas (6*d.*) per imperial gallon; but the receipts were only 57,275*l.*, or a little more than 10 per cent. on the value. In the three years 1859–60 to 1861–62, during which the 4-anna tax remained, the quantity imported averaged 3,140,000 gallons, valued at 470,000*l.*, while the duty averaged 44,000*l.* a year, or rather more than 9 per cent. In 1862–63 the imports were 3,640,000 gallons, valued at nearly 650,000*l.*; the duty, being reduced to 2 annas, realised 17,400*l.*, or nearly $3\frac{3}{4}$ per cent. In the next year the imports were yet larger, 3,670,000 gallons, valued at 712,000*l.*, and the duty, having been again reduced to one anna, brought only 12,500*l.*, or less than 2 per cent. Up to 1866–67 the imports averaged nearly 3 million gallons, but in the following year the Government adopted the plan of purchasing in England the malt liquor required for the troops, and the quantity required for their consumption, being included in Government stores, is no longer shewn as private merchandise. In the last six years the imports have averaged $1\frac{1}{2}$ millions of gallons, and the value 350,000*l.* The duty, which has remained at one anna, has realised from 10,800*l.* to 6,700*l.*, averaging about 9,000*l.*, or rather more than $2\frac{1}{2}$ per cent. on the value.

Malt Liquor. Appendix, No. 13.

The importation of spirits averaged 415,000 gallons from 1856–57 to 1860–61; in 1861–62 it was nearly 620,000 gallons, but in the next six years it was only 525,000 on the average; in 1867–68 it rose to 600,000, and in the next two years it averaged 700,000; in 1870–71 it was little over 460,000, but in 1871–72 it rose above 670,000, and in 1872–73 it touched the highest point, 723,000 gallons, whence it fell in 1873–74 to 609,000. The value was nearly 239,000*l.* on an average from 1856–57 to 1858–59, during which period the duty was $1\frac{1}{2}$ rupees per gallon, and the receipts nearly 58,000*l.* on the average, or upwards of 24 per cent. In 1859–60 the duty was raised to 3 rupees, and produced a revenue of 92,600*l.*, or more than 38 per cent. on the value. In 1860–61 the price was very much lower, and the declared value of the imports little exceeded 180,000*l.*, on which the duty amounted to 72,000*l.*, or 40 per cent. Since that date the value of the imports has, with occasional fluctuations, risen to above 560,000*l.*, the average being not quite 450,000*l.*, while the duty has averaged nearly 160,000*l.*, or upwards of 35 per cent. The highest receipts were in 1868–69 and 1869–70, when it produced upwards of 200,000*l.*

Spirits. Appendix, No. 14.

The imports of wines and liqueurs, which in 1856–57 were 267,000 gallons, valued at 197,000*l.*, rose in 1858–59 to 655,000 gallons, valued at 565,000*l.* In 1861–62 they were as low as 308,000 gallons, valued at 290,000*l.*, but they again rose, till in 1868–69 the imports exceeded 685,000 gallons, valued at 574,000*l.* Since that date they have dropped to an average of 568,000 gallons, valued at 493,000*l.* The duty produced 26,300*l.* in 1856–57, or 13 per cent., when one rupee per gallon was charged,—91,400*l.* in 1859–60, or 20 per cent., under a 2 rupee rate,—and has averaged 58,500*l.*, or $12\frac{1}{2}$ per cent., under the differential rates imposed in recent years, including the four years 1863–64 to 1866–67, when one rupee was charged on all wines.

Wine. Appendix, No. 15.

No duty has been imposed on the importation of coal and coke during the period to which this note refers, so that the increase which has taken place in the amount consumed is due to other causes than the removal of a tax on the commodity. In 1856–57 the quantity imported was only 56,500 tons, valued at 80,000*l.*, or 28*s.* 8*d.* per ton. In 1859–60 the quantity had risen to 70,200 tons, valued at 154,000*l.*, or at the rate of 41*s.* a ton. This high price, on an average, existed up to 1868–69, fluctuating between 32*s.* 11*d.* and 44*s.* 9*d.*; and in the course of those nine years the quantity of imports steadily rose, till in 1867–68 it was 385,000 tons, valued at 854,000*l.*, and in 1868–69, 350,000 tons, valued at 716,000*l.* From that time a great fall of price took place; the average quantity imported in the four years from 1869–70 to 1872–73 was 330,000 tons, but the average value only 506,000*l.*, giving an average price of only 30*s.* 8*d.* per ton. In 1873–74 the imports were 360,000 tons, valued at 740,000*l.*, or 41*s.* 1*d.* per ton, the highest price except in 1862–63 and 1867–68, when it was 44*s.* 9*d.* and 44*s.* 3*d.* respectively.

Coal. Appendix, No. 16.

Sugar. Appendix, No. 17.

The importation of sugar into British India by sea was not carried on to a great extent at the beginning of the period under consideration; from 1856–57 to 1858–59 the imports were valued at 185,000*l.* on the average, on which a duty of 5 per cent. produced about 10,000*l.* In 1859–60 the duty was doubled, and, during the five years for which it remained at 10 per cent. the value of imports averaged 284,000*l.* and the duty 28,000*l.* In 1864–65 the rate was reduced to 7½ per cent.; in the ten years from that date the quantity imported has averaged 436,000 cwts., the value 560,000*l.* and the receipt from customs dues 40,000*l.*

Exports:— Raw Cotton. Appendix, No. 18

Turning to exports, the article of greatest importance is raw cotton, which was virtually free even before 1859, when the duty on that exported from Bengal or Madras to Asia or Africa was removed. From 1856–57 to 1860–61 the quantity exported averaged a little more than 300,000,000 lbs., and the value 5,160,000*l.*, or very little above 4*d.* a lb. With the outbreak of the American War, the price steadily increased, till in 1864–65 it was 17*d.* a lb., or more than fourfold that which had been given five years before. The quantity exported was 550,000,000 lbs. in 1863–64 and 525,000,000 lbs in 1864–65, the value of the two years being 35,860,000*l.* and 37,570,000*l.* Owing doubtless to the high price realised, the exports in 1865–66 ran up to upwards of 800,000,000 lbs.; but the war in America was closing, and the value was only 35,580,000*l.*, or less than had been realised by two-thirds of the quantity in the previous year, the average price being only 10½*d.* per lb. The reaction was immediate, the excessive demand from Manchester ceasing with the opening of the ports of the Southern States; the exports in 1866–67 were only 425,000,000 lbs., valued at 16,500,000*l.* or about 9¼*d.* per lb. In the next four years there was some improvement, the average export being 611,000,000 lbs., but the value was only 19,600,000*l.* on the average, or a little above 7½*d.* per lb. In 1871–72 the quantity exported was 809,000,000 lbs., the highest ever recorded; the value, however, was only 21¼ millions sterling; this large export was counterbalanced in the following years 1872–73 and 1873–74, when the quantity averaged less than 500,000,000 lbs., and the value about 13½ millions sterling. The price has for the last three years been about 6½*d.* per lb.

Indigo. Appendix, No. 19.

The exports of indigo from 1856–57 to 1867–68 averaged a little below 10 million lbs. In one year only, 1861–62, they were below 9 millions, and in one year only, 1862–63, they exceeded 11 millions. In 1868–69 and 1869–70 they amounted to 11 millions, in 1870–71 to 11½ millions, and in the last three years to all but 13 million lbs. The average value from 1856–57 to 1867–68 was above 1,900,000*l.*; in 1868–69, 2,900,000; and in the last five years 3,400,000*l.* During the whole time the duty has been uniform, 3 rupees for each maund (of 82⅔ lbs.), or a little more than 8 shillings a cwt. The receipts from 1856–57 to 1870–71 averaged 36,000*l.*, the lowest being in 1857–58, 31,600*l.*, and the highest in 1870–71, 41,500*l.*; in the last three years they have exceeded 47,000*l.*

Rice. Appendix, No. 20.

The export of rice varied from 400,000 tons, valued at 2¼ millions sterling, in 1859–60, to 900,000 tons, valued at 5½ millions, in 1864–65. From 1865–66 to 1870–71 it averaged 660,000 tons, valued at 3,850,000; in 1871–72, it rose to 850,000 tons, valued at 4½ millions; and in 1872–73 to 1,150,000 tons, valued at 5,700,000*l.* In 1873–74 it fell just below a million tons, and 5½ millions sterling. The rate of duty was half an anna (or from Madras, one anna) per maund, in 1856–57, and the two following years, and the receipts averaged 60,000*l.* In 1859–60 it was increased to 2 annas per maund (say 4*d.* per cwt.) from all the Presidencies, and the receipts, which in that year were 130,000*l.*, rose steadily till they amounted in 1864–65 to 316,000*l.* In the following year an attempt was made to increase the duty to 3 annas, but the old rate was resumed after 3 months; the receipts were only 250,000*l.* in 1865–66, and 175,000*l.* in 1866–67. In 1867–68 the duty was again raised to 3 annas per maund, or 6*d.* per cwt., at which it has since remained. The receipts have varied, during the last seven years, from 284,000*l.* in 1869–70 to 606,000*l.* in 1872–73, the average being not quite 430,000*l.*

Wheat, &c. Appendix, No. 21.

Of wheat and other grains besides rice, the value of the exports did not greatly vary in the 17 years from 1856–57 to 1872–73, averaging 345,000*l.* In two years it fell below 300,000*l.*, namely, to 286,000*l.* in 1856–57, and to 201,000*l.* in 1869–70; and in two years it exceeded 400,000*l.*, amounting to 405,000*l.* in 1861–62, and 419,000*l.* in 1871–72. The duty has gone through the same variations as that on rice; under the half-anna rate the receipts averaged 10,500*l.*; the two-anna duty produced about 21,000*l.*; and the three-anna rate 37,000*l.* In

1871–72 it was as high as 48,000*l.*; but in 1872–73 it fell below 40,000*l.*, owing partly to a declaration in January 1873 freeing wheat from all duty when exported. The effect on the trade, caused by this exemption, has been very remarkable; the exports in 1873–74 amounted to 123,000 tons, or 2½ times the quantity exported in 1872–73, and the value to upwards of a million sterling, or nearly three times that of the previous year. The duty received was only 27,000*l.*

Coffee. Appendix, No. 22.

Proceeding to examine the traffic in coffee, tea, jute, &c., we find other instances of the advantages which free trade has conferred on the Indian cultivator. From 1856–57 to 1859–60 a duty of 3 per cent. was imposed on the export of coffee, and the receipts in the four years averaged less than 1,500*l.* The quantity of exports was, however, steadily increasing, from 5¼ million lbs. in 1856–57 to 14¼ millions in 1859–60. On being declared free in 1859, the export rose to 19 millions in 1860–61, to 26¾ millions in 1863–64, and to 34¾ in 1865–66. In that year a tax of 3 per cent. was imposed, though it was removed after three months; the exports, however, fell in 1866–67 to 17½ millions, but rose the next year to 33 millions, and in 1868–69 to 47¾ millions. In the two following years they averaged nearly 35 millions, in 1871–72 more than 56 millions, and in 1872–73 and 1873–74 upwards of 41 millions. Thus, while the average in the first four years was less than 10 million lbs., valued at about 140,000*l.*, in the last fourteen years it has been 33 million lbs., valued at 820,000*l.*, and the exports in the last year were worth little short of a million and a half sterling.

Tea. Appendix, No. 23.

In regard to tea, the progress has not been less remarkable. The amount of the 3 per cent. duty entered in the accounts from 1856–57 to 1859–60 is a mere nothing, except in the last year, when it was less than 3,000*l*; the value of the exports during the four years averaged 120,000*l.* The quantity is not stated previous to 1861–62 (the second year of the freedom from duty), when it was 2¼ million lbs., valued at 192,000*l.* Without a single instance of reaction, the exports rose to 7¼ million lbs., valued at 360,000*l.*, in 1866–67, to 12¾ million lbs., valued at a million sterling, in 1869–70, and to upwards of 19¼ million lbs., valued at 1¾ millions sterling, in 1873–74.

Jute. Appendix, No. 24.

The exports of raw jute from 1856–57 to 1859–60 averaged about 635,000 cwts., valued at 350,000*l.* on which a 3 per cent. duty produced upwards of 10,000*l.* On being freed in 1860 they increased to about 1 or 1¼ million cwts., valued at 565,000*l.* in the next three years; from 1863–64 to 1867–68 they averaged 2,150,000 cwts., valued at 1,115,000*l.*; from 1868–69 to 1870–71 they amounted to 3½ million cwts., valued at 2,150,000*l.*; and, in the last three years they have averaged not quite 6½ million cwts., valued at 3,900,000*l.*

Silk. Appendix, No. 25.

The freedom of raw silk from duty in 1859 had no great effect on the exports. From 1856–57 to 1858–59 they averaged 1½ million lbs., valued at 750,000*l*, on which about 14,000*l.* was received as duty. In the next seven years the quantity exported was about the same, but the value was nearly 900,000*l.* From 1866–67 to 1873–74, it rose to 2,200,000 lbs., valued at 1,220,000*l.*

Hides and Skins. Appendix, Nos. 26 & 27.

The traffic in hides and skins is an important branch of trade, but the figures for those not dressed, which were freed from duty in 1860, are in the earlier years mixed up with those of tanned or dressed hides and skins, on which a duty of 3 per cent. is still imposed. The number of undressed skins and hides exported was 6 millions in 1868–69, and upwards of 10½ millions on the average of the last four years, the export of 1872–73 having exceeded 11¾ millions; of those dressed, less than 5 millions were exported in 1868–69, and about 11¼ millions in 1872–73, the average of the last four years being 9 millions. Taking the two together, the value of the exports was about half a million sterling from 1856–57 to 1859–60; and in the last six years it has exceeded 2,170,000*l.*, being only just under three millions sterling in 1872–73.

Saltpetre. Appendix, No. 28.

Saltpetre was exported from India at an average rate of 630,000 cwts., valued at 490,000*l.* (or about 15*s.* 6*d.* per cwt.), from 1856–57 to 1859–60, during which time the duty of 3 per cent. produced about 19,000*l.* per annum. In 1860 the Government of India, believing that there was little or no competition to be feared, raised the duty to 2 rupees per maund, or about 35 per cent. on the price previously ruling. The immediate effect was satisfactory; the exports rose to 684,000 cwts. in 1862–63, valued at nearly 900,000*l.* (or over 26*s.* per cwt.), on which the duty, falling with an incidence of about 20 per cent., realised 186,000*l.* The high cost, however, led to an inquiry whether a substitute might not be

found for Indian saltpetre; the demand fell off; the exports were reduced to 540,000 cwts. in 1863–64, and 405,000 cwts. in 1864–65. The average price being much the same as before, the duty only realised 47,000*l.* in the former year, and 93,000*l.* in the latter. In 1865 it was reduced to 1 rupee per maund, which would have been about 10 per cent. on the price. The export that year was 484,000 cwts., valued at 605,000*l.*, and the duty 55,500*l.* In 1866 one more attempt was made to save the trade, without entirely sacrificing the duty, which was restored to its original standard of 3 per cent., but the price had by this time fallen to 16*s.* 3*d.* per cwt., the exports were only 367,000 cwts., the value 298,000*l.*, and the duty less than 7,700*l.* It was then determined to give up the tax altogether, and in 1867 saltpetre was declared a free article of export. Once more the quantity was reduced, only 330,000 cwts, valued at 256,000*l.*, being sent out of the country in 1867–68, the price (15*s.* 7*d.* per cwt.) being about the same as had been paid from 1856 to 1860. In 1868 the removal of all restrictions on the trade began to tell in its favour, and the exports of the last six years have averaged 462,000 cwts., valued at 424,000*l.*, or about 18*s.* 4*d.* per cwt. In 1872–73 the quantity exported was 519,000 cwts., the highest year since 1863–64, while the value, 536,000*l.*, shewed that the price had increased to upwards of a pound sterling per cwt.

Seeds. Appendix, No. 29.

The value of the seeds exported from India was little over 1,100,000*l.* in 1856–57, but the average of the 18 years from 1856–57 to 1873–74 has been not much less than 2,000,000*l.*; in 1858–59, 1863–64, and 1867–68, it exceeded two millions; in 1869–70, 2,300,000*l.*; in 1870–71, 3,500,000*l.*; and in 1871–72, 2,700,000*l.* In 1872–73 it dropped to 1½ millions, owing to the failure of the rape crop, but in 1873–74 it rose again to 2,360,000. The duty has throughout been 3 per cent., and has realised on the average 59,000*l.*; in the last seven years, however, it has amounted to 74,000*l.* per annum on the average.

Oils. Appendix, No. 30.

The export of oils has also been subject to a duty of 3 per cent. throughout the period treated of, and, while varying much from year to year, the trade has shewn no marked progress. It has averaged 2,625,000 gallons in quantity, and 257,000*l.* in value, or, during the last six years, 315,000*l.* The duty has averaged nearly 8,000*l.* throughout the period.

Sugar. Appendix, No. 31.

The exports of sugar exceeded 1,100,000 cwts. a year from 1856–57 to 1858–59, and the value 1,350,000*l.* The duty of 3 per cent., which was only imposed if the article was going to possessions of Foreign States, was entirely removed in 1859. The trade, however, gradually dwindled, till in 1866–67 (a year of only 11 months) the quantity exported was only 165,000 cwts., and the value 103,000*l.*, while in 1867–68 it was but 88,000*l.* In the following year a reaction took place, and from 1868–69 to 1873–74 the export, while varying greatly in particular years, has averaged 400,000 cwts., valued at 317,000*l.*

Wool. Appendix, No. 32.

Upwards of 18,000,000 lbs. of raw wool were exported yearly from 1856–57 to 1859–60, valued at 372,000*l.*, on which a duty of 3 per cent. brought in a little over 8,500*l.* In 1860 it was freed, but no very great change took place in the quantity exported, which, from 1860–61 to 1873–74, has averaged a little above 20,000,000 lbs. In 1862, however, a marked improvement took place in the price; the exports from 1862–63 to 1865–66, amounting to 22,000,000 lbs., were valued at 964,000*l.* In the next five years the quantity exported was under 17,000,000 lbs. annually, of which the average value was 610,000*l*; but in the last three years the annual exports have exceeded 21½ million pounds, valued at more than 890,000*l.*

Jute Manufactures. Appendix, No. 33.

The export of gunny bags and cloths averaged 335,000*l.* in value between 1856–57 and 1860–61. The duty of 3 per cent. previously existing was, as in many other cases, removed in 1860, but, owing probably to the increasing export of jute in its raw state, the value of its manufactures decreased rapidly, till in 1864–65 it was but 103,000*l.* In recent years jute mills have been established in India, and there has been an improvement, the value from 1868–69 to 1873–74 having averaged nearly 220,000*l.*

2. *Salt.*

Salt. Appendix, Nos. 34 and 35.

In Lower Bengal, salt used to be manufactured and sold by the officers of Government, the sum charged being the cost price added to a fixed rate of duty, which in 1856–57 was 2½ rupees a maund. In 1862 the system was changed,

and it was resolved that the agencies should be gradually abolished, and the supply of salt be left to private enterprise. An additional rate of one rupee was charged on salt imported into the North-West Provinces, till 1861, when it was removed. The stock of Government salt is now exhausted, and the consumption of Bengal is entirely met by importation, except in Orissa, where it is manufactured under Excise rules. The Customs duty on importation was $2\frac{1}{2}$ rupees per maund from 1849 to 1859, 3 rupees from 1859 to 1861, and $3\frac{1}{4}$ rupees since March 1861.

In Madras salt is made by private manufacturers, under advances from the Government, to whom they sell the salt; it is resold by the Government at the average cost (estimated at 3 annas a maund) added to the duty. The selling price was R. 1 per maund from 1844 to 1859; R. 1. 2 annas from 1859 to 1861; R. 1. 6 annas, from April to June 1861; Rs. $1\frac{1}{2}$, from June 1861 to January 1865; R. 1. 11 annas from January 1865 to 1869; and Rs. 2 since 1869 (*i.e.*, R. 1. 13 annas duty, and 3 annas cost).

In Bombay salt was manufactured under an Excise duty of 12 annas a maund from 1845 to 1859, of R. 1 from 1859 to 1861, of R. 1. 4 annas from 1861 to 1865, of Rs. $1\frac{1}{2}$ from 1865 to 1869, and of R. 1. 13 annas since 1869.

Salt crossing the Inland Customs line (which till 1874 extended the whole distance from Attock to the Mahanuddy) has paid an import duty since the establishment of the original portion of that line in 1843–44. The Rajpootana and Bhurtpoor salt paid Rs. 2 a maund from 1846–47 to 1859, Rs. $2\frac{1}{2}$ from 1859 to 1861, and Rs. 3 since 1861. (In certain sections of the line the duty was lower till 1861). Madras and Bombay salt entering the Central Provinces paid Rs. $1\frac{1}{2}$ per maund, till the increase of the duty in those Presidencies in 1869, after which date it paid only R. 1. 3 annas on crossing the line (making up, with the rate of R. 1. 13 annas previously paid as Excise, the full Customs line duty of Rs. 3.) A duty is levied at the mines in the Punjab on the salt there excavated, which varies from 2 annas at Kohat to Rs. 3 at Kalabagh, to which 1 anna is added for the cost of production.

The quantity of duty-paying salt consumed in British India (excluding Burma) has fluctuated from $20\frac{1}{4}$ millions of maunds in 1857–58 to $26\frac{3}{4}$ millions in 1872–73, the increase, on the average, having been about 16 per cent. in 17 years. Owing, however, to the increased rates of duty, the revenue has improved to a much greater extent; and the receipts, which from 1856–57 to 1859–60 only averaged $2\frac{1}{2}$ millions sterling, amounted, from 1869–70 to 1873–74, to upwards of 6 millions sterling on the average.

3. *Opium.*

Opium. Appendix, No. 36.

In Bengal, opium is cultivated under the supervision of the officers of Government, and is sold by auction at Calcutta, the number of chests to be brought out for sale during the year being announced beforehand. The average price of a chest, which in 1856–57 was only 89*l.*, rose steadily, till in 1860–61 it was not less than 192*l.* It then fell again, till in 1864–65 it was only 94*l.*, since which date it has fluctuated between 112*l.* and 139*l.* The net receipts from Bengal opium have varied from a little below two and a half millions sterling in 1861–62 to 5,300,000*l.* in 1871–72.

The opium exported from Bombay is grown in the native states of Malwa or Rajpootana, and is subjected to a pass duty at Indore or Ahmedabad. From 1847 to 1859 this duty was Rs. 400 a chest; it was then raised in three successive years to Rs. 500, 600, and 700, but the last-mentioned rate was too high and in the following year, 1862–63, it was reduced to Rs. 600, at which it has since remained. The average number of chests passed is between 30,000 and 40,000, and the net receipts usually fluctuate between $1\frac{1}{2}$ and $2\frac{1}{2}$ millions sterling; in one year, 1862–63, they were about $3\frac{1}{4}$ millions. The gross revenue from opium throughout India was about 5 millions sterling up to 1856–57. With the high price realised at Calcutta and the increase of the pass duty at Indore, it rose to upwards of 6 millions sterling from 1857–58 to 1861–62; in 1862–63 it exceeded 8 millions, and in one year, 1871–72, it exceeded $9\frac{1}{4}$ millions. The average of the last 12 years has been about 8,100,000*l.* sterling.

4. *Assessed Taxes.*

Assessed Taxes. Appendix, No. 37.

Prior to 1860, there were certain taxes, under the name of moturpha or some other local term, which brought in a small addition to the miscellaneous receipts of the Government, but the first introduction of an income tax for all India was made by Act XXXII. of July 1860, which imposed a duty of 3 per cent. on all incomes, whether from land or other property, trade or profession, interest or salary, officers of the naval and military forces excepted; the Act was to be in force for five years.

In July 1861, a duty of one, two, or three rupees was imposed, by Act XVIII., on all persons exercising any art, trade, or dealing; this Act was also to have effect for five years. It was, however, repealed in the following February, by Act II. of 1862.

In May 1863, the income tax was reduced to 2 per cent. by Act XXVII. of that year.

In 1866, these Acts came to an end, and in the following year an Act (XIV. of 1867) was introduced to regulate the assessment of the pandhari tax on persons in the Central Provinces not engaged in agriculture, and another Act, XXI., directed that all persons exercising a profession or trade, whose profits exceeded 200 rupees annually, should pay for a licence on a graduated scale varying from Rs. 4 to Rs. 500.

This Act was repealed in April 1868 by another Act (IX.) which imposed a licence tax, varying from Rs. 8 to Rs. 6,400, on all persons exercising professions or trades, whose annual profits exceeded 500 rupees.

This, in its turn, was repealed by Act IX. of 1869, which imposed an income tax, graduated from 6 rupees upwards, on all persons with incomes of not less than Rs. 500. Official salaries were to pay 1 per cent., which, by a subsequent Act (XXIII.), was increased to $2\frac{1}{2}$ per cent.

These Acts were repealed by No. XVI. of 1870, which, for the year 1870–71, imposed an income tax of 6 pies in the rupee (about 3 per cent.) on incomes of not less than Rs. 500.

This was followed by Act XII. of 1871, which reduced the income tax to 2 pies in the rupee, or about 1 per cent., and raised the minimum to Rs. 750.

Act VIII. of 1872 raised the minimum to Rs. 1,000. It expired in 1873, and has not been renewed.

The financial effect of this legislation has been the following. The old moturpha duties, &c., produced about 100,000*l.* a year from 1856–57 to 1858–59, and 200,000*l.* in 1859–60. The 3 per cent. income tax produced 1,100,000*l.* in 1860–61, and, with the assistance of the licence tax, 2,000,000*l.* in 1861–62, and nearly 1,900,000*l.* in 1862–63 after the licence tax had been repealed. The 2 per cent. income tax produced 1,500,000*l.* in 1863–64, 1,300,000*l.* in 1864–65, and 700,000*l.* in 1865–66. In the following year the Acts ceased, and the receipts were only 22,000*l.*, doubtless from arrears uncollected in the previous year. The licence tax in 1867–68 realised 650,000*l.*, and in 1868–69 (after the minimum was raised) 500,000*l.* The graduated income tax of 1 (afterwards $2\frac{1}{2}$) per cent. realised 1,100,000*l.* in 1869–70. The 3 per cent. tax brought in 2 millions in 1870–71 with a minimum of Rs. 500. On the raising of the minimum to Rs. 750, and reduction of the rate to 1 per cent. in 1871–72, the tax realised only 825,000*l.*, which was further reduced in 1872–73 to 580,000*l.*, when the minimum was fixed at Rs. 1,000. In 1873–74 a sum of 20,000*l.* was received, probably due to arrears uncollected in the preceding year.

5. *Stamps.*

Stamps. Appendix, No. 38.

The law relating to stamps was consolidated in 1860, and various Acts on the subject have since been passed, but the regulations are too detailed to admit of specific description. The duties, which averaged 600,000*l.* from 1856–57 to 1859–60, at once sprang up to double, and in a very few years treble that amount, and they have gone on steadily increasing every year, or at any rate every second year, till in 1873–74 they amounted to 2,700,000*l.*

H. WATERFIELD.

Statistics and Commerce Department, India Office,
14th December 1874.

APPENDIX.

No. 1.	Customs Tariff,	1856–57 to 1873–74.
„ 2.	Imports and Exports,	
„ 3.	Quinquennial Averages of Imports and Exports, 1834–35 to 1873–74.	
„ 4.	Customs Duty collected,	1856–57 to 1873–74.
„ 5.	Imports of Cotton Piece Goods,	
„ 6.	„ Cotton Twist, Thread, &c.,	
„ 7.	„ raw Silk,	
„ 8.	„ Silk Goods,	
„ 9.	„ Woollen Goods,	
„ 10.	„ Machinery,	
„ 11.	„ Railway Materials and Stores	
„ 12.	„ Metals,	
„ 13.	„ Malt Liquors,	
„ 14.	„ Spirits,	
„ 15.	„ Wines and Liqueurs,	
„ 16.	„ Coal,	
„ 17.	„ Sugar,	
„ 18.	Exports of raw Cotton,	
„ 19.	„ Indigo,	
„ 20.	„ Rice,	
„ 21.	„ other Grain,	
„ 22.	„ Coffee,	
„ 23.	„ Tea,	
„ 24.	„ raw Jute,	
„ 25.	„ raw Silk,	
„ 26.	„ undressed Hides,	
„ 27.	„ dressed Hides,	
„ 28.	„ Saltpetre,	
„ 29.	„ Seeds,	
„ 30.	„ Oils,	
„ 31.	„ Sugar,	
„ 32.	„ raw Wool,	
„ 33.	„ Jute Manufactures,	
„ 34.	Consumption of Salt, 1856–57 to 1872–73.	
„ 35.	Revenue derived from Salt,	1856–57 to 1873–74.
„ 36.	„ „ Opium,	
„ 37.	„ „ Assessed Taxes,	
„ 38.	„ „ Stamps,	

No. 1. Modifications of Customs Duties by Acts of the

Principal IMPORTS enumerated in the Tariffs.	Previous to 1859.	Act VII. of 1859.	Act X. of 1860.	Act XI. of 1862.	Act XXIII. of 1862.	Act XXVI. of 1863.
Animals	Free	—	—	—	—	—
Apparel, Haberdashery, &c.	Unenumerated	20 p. c.	Unenumerated	—	—	—
Arms, Ammunition, and Military Stores generally.	„	—	—	—	—	—
Military Uniforms, &c., for private use by persons in public service.	„	—	Free	—	—	—
Asphalt	„	—	—	—	—	—
Beads and False Pearls	„	—	—	—	—	—
Blacking	„	—	—	—	—	—
Books: British	Free	Free	—	—	—	
Foreign	3 p. c.					
Maps, Prints, and Works of Art	Unenumerated	—	Free	—	—	—
Bottles	„	—	—	Free	—	—
Bullion and Coin	Free	—	—	—	—	—
Cabinet Ware	Unenumerated	—	—	—	—	—
Candles	„	—	—	—	—	—
Canvas	„	—	—	—	—	—
Carpets	„	—	—	—	—	—
Carriages	„	—	Free	Unenumerated	—	—
China and Japan Ware	„	—	—	—	—	—
Clocks, &c.	„	—	—	—	—	—
Coal, Coke, &c.	Free	—	—	—	—	—
Coffee	7½ p. c.	20 p. c.	Unenumerated	—	—	—
Corals	10 p. c.	Unenumerated	—	—	—	
Corks	Unenumerated	—	—	—	—	—
Cotton: Raw	Beng. unenumerated, Mad. and Bom., 9 ans. per maund.	Free	—	—	—	—
Thread and Yarn	British, 3½ p. c.; Foreign, 7 (at Bom. 10) p. c.	5 p. c.	Unenumerated	—	—	—
Twist		5 p. c.	„	3½ p. c.	—	—
Piece Goods	British, 5 p. c.; Foreign, 10 p. c.	Unenumerated	—	5 p. c.	—	—
Other manufactures		„	—	—	—	—
Drugs and Medicines: Alum, Camphor, and Cassia.	10 p. c.	„	—	—	—	—
Others	Unenumerated					
Dyeing and Coloring Materials :— Vermilion	10 p. c.	„	—	—	—	—
Others	Unenumerated					
Felt	Unenumerated	—	—	—	—	—
Firewood	„	—	—	—	Free	—
Fireworks	„	—	—	—	—	—
Flax: Raw	„	—	Free	—	—	—
Manufactures: Piece Goods	„	—	—	5 p. c.	—	—
Other	„	—	—	„	—	—
Fruits and Vegetables: Bidmiskh and Buzarbutto Nuts	„	—	—	—	—	—
Other	„	—	—	—	—	—
Glass and Glass Ware	„	—	—	—	—	—
Grain: Rice and Paddy	Beng. and Bomb., free; Mad., 1 an. p. maund	Free	—	—	—	—
Wheat	Free					
Other						
Grass and other China Cloth	Unenumerated	—	—	—	—	—
Groceries, Provisions, and Oilman's Stores.	„	20 p. c.	Unenumerated	—	—	—
„ „ Bêche de Mer, Butter, and Salted Fish.	„					
Guano and Manures	„	—	Free	—	—	—
Gums	„	—	—	—	—	—
Hemp	„	—	Free	—	—	—
Hides and Skins: raw	„	—	Free	—	—	—
dressed	„	—	—	—	—	—
Hops	„	—	—	—	—	—
Horns	„	—	—	—	—	—
Ice	Free	—	—	—	—	—
Ivory	Unenumerated	—	—	—	—	—
Jewelry and Plate: Precious Stones and Pearls.	Free	—	—	—	—	—
Other kinds	Unenumerated	20 p. c.	Unenumerated	—	—	—
Jute: raw	„	—	Free	—	—	—
manufactures	„	—	—	—	—	—
Lac	Unenumerated	—	—	—	—	—
Leather	„	—	—	—	—	—
Liquors: Malt, Cider, &c.	5 p. c.	4 ans. per gal.	—	2 ans. per gal.	—	1 anna per gal.
Spirits: for Chemistry	Rs. 1½ per imp. gal.	Rs. 3 per gal.	—	—	10 p. c.	—
Rum and other	Country or Ceylon manufacture at Bombay, 9 ans. per gal.	Rs. 3 per gal.	—	—	—	—

Government of India passed subsequently to 1857.

Act XXIII. of 1864.	Act XVII. of 1865.	Act XXV. of 1865.	Act XVIII. of 1866 (Exports only.)	Act XVII. of 1867.	Act XL. of 1868.	Act XVII. of 1870.	Act XIII. of 1871.	Notification of January 4th, 1873 (Exports only).
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		—	—	—	—	
—	—	—		—	Free	—	7½ p. c.	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	Free	—	
—	—	—		—	—	—	—	
—	—	—		—	—	—	—	
—	—	—		—	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		5 p. c.	—	—	—	
—	—	—		,,	—	Free	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	Free	—	
—	—	—		,,	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		Free	—	7½ p. c.	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		—	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		,,	—	Free	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		Free	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		—	—	—	—	
—	—	—		5 p. c.	—	Free	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		Free	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	1 p. c.	—		Free	—	Free	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		—	—	Free	—	
—	—	—		7½ p. c.	—	Free	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		—	—	—	—	
—	—	—		—	—	—	—	

No. 1. Modifications of

Principal Imports enumerated in the Tariffs—*cont.*	Previous to 1859.	Act VII. of 1859.	Act X. of 1860.	Act XI. of 1862.	Act XXIII. of 1862.	Act XXVI. of 1863.
Liquors: Wines: Champagne, Sparkling.	R. 1 per imp. gal.	Rs. 2 per gal.	—	Rs. 2 per gal.	—	R. 1 per gal.
Light				R. 1 per gal.	—	
Other				Rs. 2 per gal.	—	
Machinery and Implements for Agriculture.	Bengal and Madras, unenumerated.	Unenumerated	Free	—		
for Navigation, Mining, Manufactures, and Railways.	Bombay, free	Free				
Other	,,	Unenumerated	Free	—	Unenumerated	
Marble	Unenumerated	—	—	—		
Matches	,,	—	—	—	—	
Mats	,,	—	—	—	—	
Metals: Iron (not Ironmongery, Cutlery, or Hardware).		Unenumerated	—	—		1 p. c.
,, Anchors, Cables, and Kentledge.		,,	—	—	—	
Steel Rails	British, 5 p. c.; Foreign, 10 p. c.	,,	—		—	—
Gold Leaf		,,	—	—	—	—
Lead Sheets for Tea Canisters.		,,	—	—		
Other kinds		,,	—	—		
Musical Instruments	Unenumerated	—	—		—	
Naval Stores (not Asphalte, Canvas, or Oakum).	British, 5 p. c.; Foreign, 10 p. c.	Unenumerated	—			
Oakum	Unenumerated	—	—	—		
Oil and Floor Cloth	,,	—	—	—		
Oils: Cocum and Slush Fat	,,	—	—	—		
Other	,,	—	—	—		
Paints and Painters' Materials	,,	—	—	—	—	—
Paper	,,	—	—	Free		—
Perfumery	,,	20 p. c.	Unenumerated	—	—	
Photographic Apparatus and Materials	,,	—	—	—	—	—
Piece Goods not otherwise described	,,	—	—	5 p. c.	—	—
Porcelain and Earthen Ware	,,	—	—	—	—	
Railway Materials (for Iron and Steel Rails, *see* Metals).						
Permanent Way	,,	—	—	—	—	—
Other	,,	—	—	—	—	
Rattans and Canes	7½ p. c.	Unenumerated	—	—	—	
Seeds for gratuitous distribution	Unenumerated	—	Free	—	—	—
Other	,,	—	—	—	—	—
Shawls	,,	—	—	—	—	—
Shells	,,	—	—	—	—	—
Silk: raw	,,	—	—	—	—	—
Piece Goods	British, 5 p. c.; Foreign, 10 p. c.	Unenumerated	—	5 p. c.	—	—
Other manufactures		,,	—	—	—	—
Soap	Unenumerated	—	—	—	—	—
Spices	10 p. c. Raw Betel Nut, at Madras, 5 p. c.	20 p. c.	Unenumerated	—	—	—
Stationery, other than Paper	Unenumerated	—	—	—	—	—
Sugar	,,	—	—	—	—	—
Tallow and Grease	,,	—	—	—	—	—
Tea	10 p. c.	20 p. c.	Unenumerated	—	—	—
Telegraph Materials: Iron	Unenumerated	—	—	—	—	—
Other	,,	—	—	—	—	—
Timber and Woods: Ebony, and other specified kinds.	,,	—	—	—	—	—
Teak and other	,,	—	—	—	—	—
Tobacco: unmanufactured	Bengal, unenumerated. Madras, 10 p. c. Bombay, 5 p. c., or Rs. 1½ or Rs. 7½ per maund, according to price	20 p. c.	8 ans. per seer	20 p. c.	—	
manufactured			R. 1 per seer			
Tobacco Pipes, &c.	Unenumerated	—	—	—	—	—
Toys and Games	,,	—	—	—	—	—
Trunks and Boxes	,,	—	—	—	—	—
Umbrellas	,,	—	—	—	—	—
Wool: raw	,,	—	Free	—	—	—
Piece Goods	British, 5 p. c.; Foreign, 10 p. c.	Unenumerated	—	5 p. c.	—	—
Other manufactures		,,	—	—	—	—
Unenumerated articles	All manufactured, 5. p. c.	10 p. c.	—	—	—	—

Customs Duties, &c.—*continued.*

Act XXIII. of 1864.	Act XVII. of 1865.	Act XXV. of 1865.	Act XVIII. of 1866 (Exports only).	Act XVII. of 1867.	Act XI. of 1868.	Act XVII. of 1870.	Act XIII. of 1871.	Notification of January 4th 1873 (Exports only).
—	—	—		Rs. 1½ per gal.	—	—	—	
				R. 1 per gal.	—	—	—	
—	—			Free	—	—	—	
—	—	—		7½ p. c.	—	Free	—	
—	—	—		Free	—	7½ p. c.	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		—	—	—	—	
—	—	—		Free	—	—	—	
—	—	—		7½ p. c.	—	1 p. c.	—	
—	—	—		,,	—	—	—	
—	—	—		Free	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		Free	—	—	—	
—	—	—		5 p. c.	—	—	—	
—	—	—		Free	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	1 p. c.	
—	—	—		,,	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		5 p. c.	—	Free	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		,,	—	Free	—	
—	—	—		,,	—	7½ p. c.	—	
—	—	—		1 p. c.	}	*See* Iron and Timber.		
—	—	—		7½ p. c.				
—	—	—		Free	—	—	—	
—	—	—		7½ p. c.	Free	—	—	
10 p. c.		—		—	—	—	—	
—	—	—		7½ p. c.	—	—	—	
—	—	—		,,	—	—	—	
—	—	—		,,	—	Free	—	
—		—		,,	—	—	—	
—		—		—	—	—	—	
—		—		—	—	—	—	
—		—		7½ p. c.	—	—	—	
7½ p. c.	—			Free	—	—	—	

No. 1. Modifications of

Principal Exports enumerated in the Tariffs.	Previous to 1859.	Act VII. of 1859.	Act X. of 1860.	Act XI. of 1862.	Act XXIII. of 1862 (Imports only).	Act XXVI. of 1863 (Imports only).
Animals	Free	—	—	—		
Books, Maps, Prints, and Works of Art.	Books, if printed in India, free.	—	All free	—		
Bullion and Coin	Free	—	—	—		
Coals	Unenumerated	—	—	Free		
Coffee	,,	—	Free	—		
Cotton: raw	Free to Europe, United States, or British Possessions out of India. To other places: Beng., 8 ans., Mad., 9 ans. per maund ; Bomb., free.	Free	—	—		
Manufactures	Unenumerated	—	—	—		
Flax	,,	—	Free	—		
Grain and Pulse	Beng. and Bomb., ½ an. per maund on all ; Mad., 1 an. on Rice and Paddy, ½ an. on others.	2 ans. p. maund	—	—		
Hemp	Unenumerated	—	Free	—		
Hides and Skins: raw	,,	—	Free	—		
dressed	,,	—	—	—		
Indigo	Rs. 3 per maund	—	—	—		
Jute	Unenumerated	—	Free	—		
Lac	Beng. and Bomb., 4 p. c. ; Mad., 5 p. c.	4 p. c.	—	—		
Metals: Iron	Unenumerated	—	—	Free		
Oils	,,		—	—		
Precious Stones and Pearls	Free		—	—		
Saltpetre	Unenumerated	—	Rs. 2 p. maund	—		
Seeds	,,	—	—	—		
Shawls	,,	—	—	—		
Silk: raw	Beng., raw, 3½ ans. per seer; wound, 3 ans. Mad., all 3 p. c. Bomb., all 3½ ans. per seer.	Free	—			
Spices	Unenumerated	—	—			
Spirits: Rum	Beng. and Mad., free to British Possessions; to other places, 3 p. c. Bom., 9 ans. per gal.	Free	—	—		
Other						
Sugar	Do., do., do.; Bomb., free	Free	—	—		
Tea	Unenumerated	—	Free	—		
Teak (special laws regarding Burma, *see* Act XXX. of 1854 and XVII. of 1871).	,,	—	Free	—		
Tobacco	Beng., 4 ans. per maund; Mad., 10 p. c.; Bomb., 1⅓ ans. per maund.	Free	—	—		
Wool	Unenumerated	—	Free			
Unenumerated Articles	3 per cent.	—				

Customs Duties, &c.—*continued.*

	Act XXIII. of 1864 (Imports only).	Act XVII. of 1865.	Act XXV. of 1865.	Act XVIII. of 1866.	Act XVII. of 1867.	Act XI. of 1868 (Imports only).	Act XVII. of 1870.	Act XIII. of 1871.	Notification of January 4th, 1873.
		—	—	—	—		—	—	—
		—	—	—	—		—	—	—
		—	—	—	—		—	—	—
		—	—	—	—		—	—	—
		Unenumerated	Free	—	—		—	—	—
		—	—	—	—		—	—	—
		—	—	—	3 p. c.		—	—	—
		—	—	—	—		—	—	—
		3 ans. p. maund	2 ans. p. maund	—	3 ans. p. maund		—	—	Wheat, free. Others, 3 ans. per maund.
		—	—	—	—		—	—	—
		2 p. c.	Free	—	—		—	—	—
		—	—	—	3 p. c.		—	—	—
		—	—	—	—		—	—	—
		Unenumerated	Free	—	—		—	—	—
		—	—	—	—		—	—	— *
		—	—	—	—		—	—	—
		—	—	—	3 p. c.		—	—	—
		—	—	—	—		—	—	—
		Rs. 1 p. maund	—	Unenumerated	Free		—	—	—
		—	—	—	3 p. c.		—	—	—
		—	—	—	3 p. c.		—	—	—
		2 p. c.	Free	—	—		—	—	—
		—	—	—	3 p. c.		—	—	—
		—	—	—	—		—	—	—
		2 p. c.	Free	—	—		—	—	—
		Unenumerated	Free	—	—		—	—	—
		—	—	—	—		—	—	—
		—	—	—	—		—	—	—
		Unenumerated	Free	—	—		—	—	—
		—	—	—	Free		—	—	—

* The export duty on lac dye was removed by a Notification dated 27th November 1874.

No. 2. Value of Merchandise and Treasure Imported into, and Exported from British India, 1856–57 to 1873–74.

Year.	Imports.			Exports.		
	Merchandise.	Treasure.	Total.	Merchandise.	Treasure.	Total.
	£	£	£	£	£	£
1856–57 -	14,194,587	14,413,699	28,608,286	25,338,453	1,253,428	26,591,881
1857–58 -	15,277,629	15,815,436	31,093,065	27,456,036	822,438	28,278,474
1858–59 -	21,728,579	12,817,071	34,545,650	29,862,871	669,427	30,532,298
1859–60 -	24,265,140	16,356,963	40,622,105	27,960,203	929,007	28,889,210
1860–61 -	23,493,716	10,677,077	34,170,793	32,970,605	1,119,549	34,090,154
1861–62 -	22,320,432	14,951,985	37,272,417	36,317,042	683,355	37,000,397
1862–63 -	22,632,384	20,508,967	43,141,351	‡47,859,645	1,111,140	48,970,785
1863–64 -	27,145,590	22,962,581	50,108,171	‡65,625,449	1,270,435	66,895,884
1864–65 -	28,150,923	21,363,352	49,514,275	‡68,027,016	1,444,775	69,471,791
1865–66 -	29,599,228	26,557,301	56,156,529	‡65,491,123	2,165,352	67,656,475
1866–67* -	29,038,715	13,236,905	42,275,620	41,859,994	2,431,503	44,291,497
1867–68 -	35,705,783	11,775,374	47,481,157	50,874,056	1,571,946	52,446,002
1868–69 -	35,990,142	15,155,954	51,146,096	53,062,165	1,395,580	54,457,745
1869–70 -	†32,927,520	13,954,807	46,882,327	52,471,376	1,042,353	53,513,729
1870–71 -	33,413,906	5,444,823	38,858,729	55,331,825	2,220,765	57,552,590
1871–72 -	31,083,747	11,573,813	42,657,560	63,185,847	1,476,093	64,661,940
1872–73 -	31,260,561	4,556,585	35,817,146	55,227,495	1,298,079	56,525,574
1873–74 -	32,593,609	5,792,533	38,386,142	54,960,778	1,914,071	56,874,849

* Eleven months.
† Reduction in the Tariff Values of Cotton Goods and principal Metals, by about 15 per cent., on the 18th of March 1869.
‡ American Civil War, 1861–65.

No. 3. Quinquennial Averages of Imports and Exports, 1834–35 to 1873–74.

Years.	Imports.			Exports.		
	Merchandise.	Treasure.	Total.	Merchandise.	Treasure.	Total.
	£	£	£	£	£	£
1834–35 to 1838–39 -	4,970,618	2,345,335	7,315,953	11,071,529	251,069	11,322,599
1839–40 to 1843–44 -	7,691,428	2,762,164	10,453,593	13,789,770	462,792	14,252,562
1844–45 to 1848–49 -	9,136,126	3,073,249	12,209,375	15,675,044	1,320,504	16,995,548
1849–50 to 1853–54 -	11,058,538	4,792,802	15,851,340	19,023,095	994,030	20,017,125
1854–55 to 1858–59 -	15,577,392	11,275,150	26,852,542	24,924,770	922,701	25,847,471
1859–60 to 1863–64 -	23,971,452	17,091,515	41,062,967	42,146,589	1,022,697	43,169,286
1864–65 to 1868–69 -	31,696,958	17,617,777	49,314,735	55,862,871	1,801,831	57,664,702
1869–70 to 1873–74 -	32,255,868	8,264,512	40,520,380	56,235,464	1,590,272	57,825,736

Note.—The amounts for the subordinate Bengal and Bombay ports are not included until 1853–54.

No. 4. Gross Amount of Customs Duty (excluding Duty on Salt) collected in British India, on Imports by sea from, or Exports by sea to, Foreign Countries, 1856–57 to 1873–74.

Year.	On Imports.	On Exports.	Total.
	£	£	£
1856–57	708,127	270,609	978,736
1857–58	741,478	288,724	1,030,202
1858–59	1,209,496	298,772	1,508,268
1859–60	2,276,721	362,676	2,639,397
1860–61	2,481,382	536,479	3,017,861
1861–62	1,933,040	564,261	2,497,301
1862–63	1,540,855	606,008	2,146,863
1863–64	1,465,863	599,386	2,065,249
1864–65	1,406,750	586,657	1,993,407
1865–66	1,483,927	491,807	1,975,734
1866–67*	1,505,261	338,617	1,843,878
1867–68	1,828,316	519,497	2,347,813
1868–69	1,904,541	600,248	2,504,789
1869–70	1,749,903	480,191	2,230,094
1870–71	1,761,374	640,322	2,401,696
1871–72	1,649,879	687,768	2,337,647
1872–73	1,646,777	798,975	2,445,752
1873–74	1,675,795	724,072	2,399,867

* Eleven months.

No. 5. Imports of Cotton Piece Goods into British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
		£		£
1856–57	Cannot be stated, owing to the various denominations under which the goods were entered.	4,941,353	British, 5 p. c.; Foreign, 10 p. c.	252,449
1857–58		4,776,764	" " " "	241,647
1858–59		8,088,927	" " " "	467,296
1859–60		9,651,813	10 per cent.	960,813
1860–61		9,309,935	" "	927,774
1861–62		8,772,916	" "	859,475
1862–63		8,360,229	5 per cent.	427,112
1863–64		10,416,662	" "	411,645
1864–65		11,035,885	" "	504,360
1865–66		11,849,214	" "	577,691
1866–67*		12,524,106	" "	636,179
1867–68		14,999,917	" "	752,438
1868–69		16,072,551	" "	801,191
1869–70		13,555,846	" " (valuation reduced)	676,988
1870–71		15,644,867	" "	796,380
1871–72		15,009,981	" "	754,081
1872–73		14,545,772	" "	723,741
1873–74		15,104,897	" "	750,505

* Eleven months.

No. 6. Imports of Cotton Twist, Thread, and Yarn, into British India, 1856–57 to 1873–74.

Year.	Quantity.*	Value.	Rate of Duty.	Amount of Duty.†
	Lbs.	£		£
1856–57	21,754,709	1,191,974	3½ p. c. British ; 7 (Bom. 10) p. c., Foreign	45,297
1857–58	17,673,158	943,920	,, ,, ,,	35,600
1858–59	31,111,303	1,714,216	,, ,, ,,	66,118
1859–60	31,477,257	2,047,115	5 per cent.	118,964
1860–61	20,850,500	1,748,183	10 per cent.	175,027
1861–62	23,865,098	1,472,484	,,	75,035
1862–63	19,493,879	1,270,301	Twist, 3½ p. c. ; thread, &c., 10 p. c.	46,052
1863–64	19,608,137	1,529,001	,, ,, ,,	44,655
1864–65	17,901,925	2,191,440	Twist, 3½ p. c. ; thread, &c., 7½ p. c.	72,929
1865–66	16,892,073	1,961,144	,, ,, ,,	67,930
1866–67‡	30,855,040	2,572,700	,, ,, ,,	90,904
1867–68	26,719,280	2,698,350	,, ,, ,,	96,370
1868–69	29,042,052	2,779,934	,, ,, ,,	100,091
1869–70	32,049,038	2,715,370	,, ,, ,,	95,097
1870–71	40,387,059	3,400,002	,, ,, ,,	102,915
1871–72	28,853,890	2,473,353	,, ,, ,,	86,613
1872–73	32,192,843	2,683,981	,, ,, ,,	92,593
1873–74	30,947,634	2,676,444	,, ,, ,,	92,006

* Exclusive of some entered under the denomination of "reels," or under value only.
† Including that paid on "other sorts" of cotton manufactures.
‡ Eleven months.

No. 7. Imports of Raw Silk into British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Lbs.	£		£
1856–57	564,878	120,130	5 per cent. (10 per cent. if Foreign)	6,003
1857–58	1,438,630	377,990	,, ,, ,,	18,907
1858–59	1,847,643	504,903	,, ,, ,,	28,010
1859–60	1,149,492	307,560	10 per cent.	30,754
1860–61	1,478,863	404,870	,,	40,452
1861–62	1,413,279†	413,999	,,	41,430
1862–63	1,601,366	392,359	,,	39,246
1863–64	1,404,925	385,507	,,	35,322
1864–65	1,276,773	329,315	7½ per cent.	20,128
1865–66	1,451,822	511,239	,,	26,301
1866–67*	1,491,687	423,866	,,	31,519
1867–68	1,627,996	566,583	,,	43,875
1868–69	1,959,951	730,934	,,	57,324
1869–70	2,016,726	901,117	,,	66,788
1870–71	2,328,854	895,563	,,	85,505‡
1871–72	1,799,591	651,595	,,	69,896‡
1872–73	1,930,910	659,480	,,	72,903‡
1873–74	2,282,758	786,914	,,	81,855‡

* Eleven months. † Excluding imports into Bengal. ‡ Including duty on "Silk Goods."

No. 8.—Imports of Silk Goods into British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
		£		£
1856–57	Cannot be stated, owing to the various denominations under which the goods were entered.	106,333	5 per cent. (10 per cent., if Foreign)	10,268
1857–58		108,023	,, ,, ,, -	9,377
1858–59		147,740	,, ,, ,, -	13,965
1859–60		224,116	10 per cent. - - - -	22,352
1860–61		259,596	,, ,, - - -	25,954
1861–62		198,442	,, ,, - - - -	22,162
1862–63		342,111	Piece goods, 5 p. c., other sorts 10 p. c.	25,039
1863–64		456,781	,, ,, ,, ,, -	23,379
1864–65		443,949	Piece goods, 5 p. c., other sorts 7½ p. c.	21,562
1865–66		357,380	,, ,, ,, ,, -	17,426
1866–67*		415,070	,, ,, ,, ,, -	21,050
1867–68		423,598	,, ,, ,, ,, -	20,049
1868–69		486,518	,, ,, ,, ,, -	28,939
1869–70		466,593	,, ,, ,, ,, -	22,762
1870–71		425,527	,, ,, ,, ,, -	†
1871–72		480,948	,, ,, ,, ,, -	†
1872–73		560,646	,, ,, ,, ,, -	†
1873–74		608,374	,, ,, ,, ,, -	†

* Eleven months.

† Included in Duty on Raw Silk (*see* Statement 7).

No. 9.—Imports of Woollen Goods into British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
		£		£
1856–57	Cannot be stated, owing to the various denominations under which the goods were entered.	142,797	5 per cent. (10 per cent., if Foreign)	9,520
1857–58		261,589	,, ,, ,, ,, -	13,673
1858–59		294,258	,, ,, ,, ,, -	20,111
1859–60		358,557	10 per cent. - - -	34,699
1860–61		222,813	,, ,, - - - -	22,201
1861–62		245,650	,, ,, - - -	25,130
1862–63		296,221	Piece goods, 5 p. c., other sorts 10 p. c.	22,082
1863–64		611,570	,, ,, ,, ,, -	30,638
1864–65		867,831	Piece goods, 5 p. c., other sorts 7½ p. c.	42,913
1865–66		583,132	,, ,, ,, ,, -	29,182
1866–67*		576,481	,, ,, ,, ,, -	29,314
1867–68		598,540	,, ,, ,, ,, -	32,135
1868–69		759,629	,, ,, ,, ,, -	38,752
1869–70		594,142	,, ,, ,, ,, -	30,124
1870–71		582,339	,, ,, ,, ,, -	29,390
1871–72		513,492	,, ,, ,, ,, -	25,975
1872–73		719,530	,, ,, ,, ,, -	35,876
1873–74		668,911	,, ,, ,, ,,	33,210

* Eleven months.

No. 10.—Imports of Machinery of all kinds into British India, 1856–57 to 1873–74.

Year.	Value.	Rate of Duty.	Amount of Duty.
	£		
1856–57	244,433	Free at Bombay; 5 p. c. at Calcutta and Madras	Duty too small to be separately shewn in the Trade Accounts.
1857–58	465,453	,, ,, ,, ,, ,,	
1858–59	587,566	,, ,, ,, ,, ,,	
1859–60	870,531	Free, if for Agriculture, Navigation, Mining, Manufacture, or Railway purposes; others 10 per cent.	
1860–61	870,251	All free	
1861–62	553,883	,,	
1862–63	506,518	Free, if for above specified purposes; others 10 p. c.	
1863–64	585,516	Free, if for above specified purposes; others, 7½ p. c.	
1864–65	554,150	,, ,, ,, ,, ,,	
1865–66	586,182	,, ,, ,, ,, ,,	
1866–67*	601,740	,, ,, ,, ,, ,,	
1867–68	1,077,529	All free	Nil.
1868–69	794,569	,,	
1869–70	555,742	,,	
1870–71	447,543	,,	
1871–72	405,835	,,	
1872–73	517,316	,,	
1873–74	1,002,347	,,	

* Eleven months.

No. 11.—Imports of Railway Materials and Stores into British India, 1856–57 to 1873–74.

Year.	Value.	Rate of Duty.	Amount of Duty.
	£		
1856–57	626,842	5 per cent.	Included under Metals; *see* statement 12.
1857–58	989,552	,,	
1858–59	1,233,578	,,	
1859–60	1,706,002	10 per cent	
1860–61	1,903,344	,,	
1861–62	1,509,580	,,	45,937
1862–63	1,165,852	,,	56,992
1863–64	1,267,240	Iron, 1 per cent.; other, 10 per cent.	38,996
1864–65	685,632	Iron, 1 per cent.; other, 7½ per cent.	9,201
1865–66	1,435,929	,, ,, ,, ,,	17,214
1866–67*	2,091,417	,, ,, ,, ,,	38,722
1867–68	2,464,966	,, ,, ,, ,,	52,332
1868–69	1,591,813	,, ,, ,, ,,	29,524
1869–70	1,217,334	,, ,, ,, ,, (Tariff valuation of metals reduced).	19,360
1870–71	1,466,068	Iron or Steel Rails, 1 per cent.; other, 7½ per cent.	21,728
1871–72	513,246†	All Permanent Way Materials, 1 p. c.; other, 7½ p.c.	7,606
1872–73	327,466†	,, ,, ,, ,, ,, ,,	5,459
1873–74	438,847†	,, ,, ,, ,, ,, ,,	12,658

* Eleven months.

† Government Stores omitted.

No. 12. Imports of Metals, Unmanufactured and Manufactured (other than for Railway purposes), into British India, 1856–57 to 1873–74.

Year.	Value. Unmanufactured.	Value. Manufactured.	Rate of Duty.	Amount of Duty on all Metals and their Manufactures.
	£	£		£
1856–57	1,001,250	882,454	5 p. c. British; 10 p. c. Foreign	144,301 Including duty on Railway Materials and Stores.
1857–58	1,094,337	378,989	„ „ „	154,562
1858–59	2,004,611	447,011	„ „ „	197,233
1859–60	1,786,798	454,457	10 p. c.	413,315
1860–61	2,116,298	386,748	„	403,456
1861–62	2,168,135	383,694	„	328,321
1862–63	2,579,219	424,188	„	339,806
1863–64	2,949,979	418,673	Iron (not ironmongery, cutlery, or hardware), 1 p. c.; other, 10 p. c.	282,778
1864–65	3,147,828	608,104	Iron (as above), 1 p. c.; other, 7½ p. c.	240,563
1865–66	2,396,029	647,205	„ „ „ „ „	207,803
1866–67*	1,914,371	673,056	„ „ „ „ „	152,627
1867–68	2,765,221	1,173,935	Iron (as above, or if for Telegraph materials), 1 p. c.; other, 7½ p. c.	227,281
1868–69	2,700,365	1,139,286	„ „ „	218,913
1869–70	2,656,284	913,844	„ (Valuation reduced)	207,286
1870–71	1,863,272	850,319	Telegraph materials, free; Iron (as above), 1 p. c.; other, 7½ p. c.	164,289
1871–72	1,464,936	925,839	„ „ „	136,222
1872–73	939,294	863,327	„ „ „	99,035
1873–74	924,297	814,210	„ „ „	92,931

* Eleven months.

No. 13. Imports of Malt Liquor into British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Gallons.	£		£
1856–57	Not stated	242,838	5 p. c.	6,513
1857–58		239,308	„	9,259
1858–59		424,928	„	17,313
1859–60	3,850,291	539,497	4 annas per Imperial gallon	57,275
1860–61	2,888,015	448,475	„ „ „	37,956
1861–62	2,671,523	429,444	„ „ „	37,345
1862–63	3,638,060	646,782	2 annas „ „	17,392
1863–64	3,671,970	712,393	1 anna „ „	12,544
1864–65	2,983,232	471,917	„ „ „	10,746
1865–66	3,113,021	528,485	„ „ „	11,071
1866–67*	2,753,047	552,024	„ „ „	12,876
1867–68	2,268,298	435,770	„ „ „	9,565
1868–69	1,656,098†	381,773†	„ „ „	9,994
1869–70	1,747,721†	413,520†	„ „ „	10,800
1870–71	1,365,303†	311,686†	„ „ „	6,769
1871–72	1,323,927†	305,319†	„ „ „	8,275
1872–73	1,536,496†	363,496†	„ „ „	9,452
1873–74	1,435,345†	337,916†	„ „ „	8,852

* Eleven months.

† After 1867–68, the imports of Malt Liquor for the Troops, being made by the Government, are not included.

No. 14. Imports of Spirits into British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Gallons.	£		£
1856–57 -	473,277	180,050	Rs. 1½ per Imperial gallon; at Bombay, Ceylon Spirits were taxed only 9 annas per gallon.	41,620
1857–58 -	299,743	166,258	,, ,, ,, -	44,305
1858–59 -	567,030	369,700	,, ,, ,, -	87,375
1859–60 -	332,133	241,449	Rs. 3 per Imperial gallon - - -	92,649
1860–61 -	406,269	181,377	,, ,, (duty being rateably increased for excess of proof.)	72,264
1861–62 -	618,692	251,369	,, ,, ,, ,, - -	86,119
1862–63 -	500,081	452,503	,, ,, (except for Spirits used in Chemistry, &c., which paid 10 per cent.)	122,811
1863–64 -	479,057	412,632	,, ,, ,, ,, - -	132,753
1864–65 -	414,584	324,852	,, ,, ,, ,, - -	120,240
1865–66 -	598,357	416,592	,, ,, ,, ,, - -	147,151
1866–67* -	557,342	388,223	,, ,, ,, ,, - -	148,622
1867–68 -	601,610	455,174	,, ,, ,, ,, - -	171,004
1868–69 -	681,182	549,819	,, ,, ,, ,, - -	200,571
1869–70 -	713,437	564,378	,, ,, ,, ,, - -	200,735
1870–71 -	461,323	385,900	,, ,, ,, ,, - -	184,309
1871–72 -	671,626	560,485	,, ,, ,, ,, - -	167,417
1872–73 -	723,609	553,884	,, ,, ,, ,, - -	184,068
1873–74 -	608,824	488,597	,, ,, ,, ,, - -	193,261

* Eleven months.

No. 15. Imports of Wines and Liqueurs into British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Gallons.	£		£
1856–57 -	267,576	197,214	R. 1 per Imperial gallon - - -	26,320
1857–58 -	320,861	246,685	,, ,, - - -	27,088
1858–59 -	655,750	564,810	,, ,, - - -	69,605
1859–60 -	464,319	445,629	Rs. 2 ,, - - -	91,369
1860–61 -	350,958	340,149	,, ,, - - -	70,065
1861–62 -	308,581	290,398	,, ,, - - -	61,957
1862–63 -	359,655	339,329	R. 1 on Light Wines; Rs. 2 on others -	65,240
1863–64 -	470,690	429,339	R. 1 per Imperial gallon - - -	47,249
1864–65 -	446,016	402,393	,, ,, - - -	44,611
1865–66 -	502,739	474,344	,, ,, - - -	50,180
1866–67* -	472,941	436,153	,, ,, - - -	49,230
1867–68 -	530,942	476,406	Rs. 1½ on Champagne, Sparkling Wines, and Liqueurs; R. 1 on others.	57,936
1868–69 -	685,545	574,040	,, ,, ,, ,, -	72,527
1869–70 -	646,923	548,329	,, ,, ,, ,, -	71,292
1870–71 -	490,835	434,048	,, ,, ,, ,, -	51,976
1871–72 -	567,737	495,783	,, ,, ,, ,, -	60,453
1872–73 -	592,831	511,864	,, ,, ,, ,, -	67,549
1873–74 -	545,043	476,196	,, ,, ,, ,, -	64,275

* Eleven months.

No. 16. Imports of Coal and Coke into British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Average Price per Ton.	Rate of Duty.	Amount of Duty.
	Cwts.	£	s. d.		
1856–57	1,130,920	80,532	28 8		
1857–58	(Not stated.)	170,634	—		
1858–59	1,993,920	151,588	30 5		
1859–60	1,404,920	154,287	41 0		
1860–61	(Not stated.)	301,053	—		
1861–62	3,497,257	345,981	39 7		
1862–63	2,454,440	274,766	44 9		
1863–64	3,792,220	332,627	35 1		
1864–65	4,339,700	357,612	32 11		
1865–66	4,566,380	466,805	40 10	Free	Nil.
1866–67*	5,153,066	512,123	39 9		
1867–68	7,706,625	853,984	44 3		
1868–69	6,978,542	715,864	41 0		
1869–70	6,740,463	544,478	32 3		
1870–71	5,723,613	467,096	32 7		
1871–72	7,483,703	514,794	27 6		
1872–73	6,492,766	497,942	30 8		
1873–74	7,198,057	740,026	41 1		

* Eleven months.

No. 17. Imports of Sugar into British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Cwts.	£		£
1856–57	(Not stated.)	90,145	5 per cent.	4,512
1857–58	154,764	203,374	„	10,175
1858–59	201,264	270,313	„	15,355
1859–60	(Not stated.)	155,577	10 per cent.	21,134
1860–61	(Not stated.)	220,270	„	22,026
1861–62	184,130	232,765	„	23,251
1862–63	307,001	382,312	„	38,228
1863–64	235,487	429,138	„	35,716
1864–65	213,637	318,627	7½ per cent.	20,206
1865–66	397,058	563,305	„	36,326
1866–67*	429,050	541,817	„	40,377
1867–68	434,306	536,885	„	40,057
1868–69	525,985	653,612	„	46,193
1869–70	572,134	715,553	„	53,384
1870–71	440,684	555,801	„	41,360
1871–72	562,559	709,779	„	52,638
1872–73	342,450	440,146	„	32,693
1873–74	435,570	558,978	„	41,475

* Eleven months.

No. 18. Exports of Raw Cotton from British India, 1856–57 to 1873–74.†

Year.	Quantity.	Value.	Price per Lb.	Rate of Duty.	Amount of Duty.
	Lbs.	£	*d.*		
1856–57	319,653,524	4,437,949	3·3	To Europe, United States, or British Possessions in America, free; to other places, 8 annas per maund from Bengal, 9 annas from Madras, all free from Bombay.	Nil.
1857–58	260,354,052	4,301,768	3·9		
1858–59	217,861,572	4,094,100	4·5		
1859–60	345,953,569	5,637,624	3·9	Free	Nil.
1860–61	381,462,002	7,342,168	4·6	,,	
1861–62	395,099,088	10,203,470	6·2	,,	
1862–63	473,678,421	18,779,040	9·5	,,	
1863–64	550,126,402	35,864,795	15·6	,,	
1864–65	525,052,876	37,573,637	17·1	,,	
1865–66	803,150,424	35,587,389	10·6	,,	
1866–67*	425,568,892	16,458,277	9·2	,,	
1867–68	614,056,049	20,092,570	7·8	,,	
1868–69	697,630,796	20,149,825	6·9	,,	
1869–70	554,834,522	19,079,138	8·2	,,	
1870–71	577,600,764	19,460,899	8·0	,,	
1871–72	809,246,087	21,272,430	6·3	,,	
1872–73	494,214,447	14,022,108	6·8	,,	
1873–74	504,065,620	13,216,185	6·3	,,	

* Eleven months.

† In the Tables of Exports, the figures as a rule refer to Indian Produce and Manufactures, excluding Re-exports.

No. 19. Exports of Indigo from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Lbs.	£		£
1856–57	10,897,930	1,937,907	Rs. 3 per maund	37,836
1857–58	9,137,855	1,734,339	,, ,,	31,598
1858–59	9,196,389	2,118,016	,, ,,	32,215
1859–60	10,718,851	2,021,288	,, ,,	38,711
1860–61	9,842,653	1,886,525	,, ,,	35,059
1861–62	8,850,385	1,647,503	,, ,,	31,943
1862–63	11,324,880	2,126,870	,, ,,	40,846
1863–64	9,172,645	1,756,158	,, ,,	32,864
1864–65	9,745,091	1,860,141	,, ,,	34,167
1865–66	9,604,236	1,861,501	,, ,,	34,171
1866–67*	9,464,448	1,815,806	,, ,,	34,126
1867–68	9,650,206	1,823,226	,, ,,	34,724
1868–69	11,111,072	2,893,823	,, ,,	40,718
1869–70	10,985,520	3,178,045	,, ,,	40,181
1870–71	11,556,608	3,192,503	,, ,,	41,521
1871–72	12,926,368	3,687,762	,, ,,	47,125
1872–73	12,914,944	3,426,824	,, ,,	47,210
1873–74	12,989,760	3,555,300	,, ,,	47,290

* Eleven months.

No. 20. Exports of Rice from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Tons.	£		£
1856–57	(Not stated)	2,301,182	½ anna per maund; from Madras, 1 anna	52,505
1857–58	771,894	3,449,172	„ „ „ „	73,738
1858–59	449,812	2,433,145	„ „ „ „	53,780
1859–60	400,094	2,276,296	2 annas per maund	132,193
1860–61	609,040	2,962,497	„ „	207,123
1861–62	790,400	3,635,075	„ „	233,230
1862–63	713,359	3,378,496	„ „	239,904
1863–64	814,697	3,975,565	„ „	272,724
1864–65	901,534	5,573,537	„ „	316,481
1865–66	696,014	4,909,562	April to July, 3 annas; afterwards, 2 annas	250,027
1866–67*	602,708	3,295,094	2 annas per maund	175,011†
1867–68	612,861	3,647,008	3 annas per maund	329,598
1868–69	752,560	4,210,925	„ „	396,444
1869–70	514,110	3,020,276	„ „	284,464
1870–71	789,601	4,146,638	„ „	413,966
1871–72	849,544	4,446,588	„ „	446,025
1872–73	1,148,689	5,701,439	„ „	606,677
1873–74	990,259	5,465,470	„ „	516,266

* Eleven months.

† Including grain and pulse of all sorts.

No. 21. Exports of Grain, other than Rice, from British India, 1856–57 to 1873–74.

Year.	Quantity.*	Value.	Rate of Duty.	Amount of Duty.
	Qrs.	£		£
1856–57	Cannot be stated.	286,274	½ anna per maund	11,548
1857–58		341,201	„ „	8,393
1858–59		368,726	„ „	11,435
1859–60		312,266	2 annas per maund	20,382
1860–61		388,380	„ „	22,515
1861–62	350,479	404,863	„ „	24,004
1862–63	298,694	349,414	„ „	21,199
1863–64	333,632	349,812	„ „	23,345
1864–65	288,640	382,871	„ „	20,289
1865–66	261,945	338,356	April to July, 3 annas; afterwards, 2 annas	17,227
1866–67 (11 months)	(Not stated)	358,697	2 annas per maund	(included with Rice, *see* Statement 20).
	Tons			
1867–68	37,007	314,218	3 annas per maund	36,250
1868–69	30,067	363,783	„ „	36,362
1869–70	20,533	201,178	„ „	29,578
1870–71	27,216	322,356	„ „	33,397
1871–72	47,875	419,160	„ „	48,193
1872–73	50,278	372,190	„ „ (wheat, free from January 4th, 1873).	39,797
1873–74	123,319	1,082,876	„ „	27,171

* Excluding miscellaneous sorts, which are only entered in value.

No. 22. Exports of Coffee from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Lbs.	£		£
1856–57	5,205,400	132,819	3 per cent.	1,520
1857–58	6,123,807	99,727	„	1,241
1858–59	11,695,195	135,036	„	2,109
1859–60	14,345,809	188,532	„	958
1860–61	19,119,041	337,433	Free	
1861–62	21,505,676	467,991	„	
1862–63	21,045,733	513,257	„	
1863–64	26,752,961	657,672	„	
1864–65	32,387,889	801,908	„	
1865–66	34,700,197	785,103	April to July, 3 per cent.; afterwards, free	
1866–67*	17,636,375	414,107	Free	Nil.
1867–68	33,189,134	746,847	„	
1868–69	47,788,773	1,101,384	„	
1869–70	36,081,003	861,703	„	
1870–71	33,459,426	800,090	„	
1871–72	56,363,838	1,368,949	„	
1872–73	41,462,705	1,128,549	„	
1873–74	40,715,638	1,487,467	„	

* Eleven months.

No. 23. Exports of Tea from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Lbs.	£		£
1856–57	(Not stated.)	121,061	3 per cent.	208
1857–58		53,331	„	13
1858–59		60,533	„	11
1859–60		127,771	„	2,981
1860–61		151,981	Free	
1861–62	2,220,889	192,452	„	
1862–63	2,928,740	223,763	„	
1863–64	3,708,010	271,222	„	
1864–65	3,757,898	301,029	„	
1865–66	4,188,324	310,100	April to July, 3 per cent.; afterwards, free	
1866–67*	7,209,091	360,327	Free	Nil.
1867–68	7,811,429	686,928	„	
1868–69	11,480,213	951,376	„	
1869–70	12,754,022	1,037,883	„	
1870–71	13,232,232	1,120,517	„	
1871–72	17,187,328	1,454,985	„	
1872–73	17,789,911	1,577,691	„	
1873–74	19,324,235	1,742,926	„	

* Eleven months.

No. 24. Exports of Raw Jute from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Cwts.	£		£
1856–57	673,416	274,957	3 per cent.	8,244
1857–58	788,820	303,292	„	9,093
1858–59	317,890	525,099	„	15,750
1859–60	761,201	290,018	„	8,699
1860–61	1,092,668	409,372	Free	
1861–62	1,232,279	537,610	„	
1862–63	1,266,884	750,456	„	
1863–64	2,513,887	1,507,037	„	
1864–65	2,100,577	1,307,844	„	
1865–66	2,354,910	771,691	April to July, 3 p. c.; afterwards free	
1866–67*	1,761,321	674,122	Free	Nil.
1867–68	2,057,442	1,309,536	„	
1868–69	3,363,648	1,891,899	„	
1869–70	3,361,852	1,984,495	„	
1870–71	3,754,083	2,577,552	„	
1871–72	6,133,813	4,117,308	„	
1872–73	7,080,912	4,142,548	„	
1873–74	6,127,279	3,436,015	„	

* Eleven months.

No. 25. Exports of Raw Silk from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Lbs.	£		£
1856–57	1,756,778	782,140	3½ annas per seer from Bengal and Bombay; 3 per cent. from Madras.	15,244
1857–58	1,580,463	766,673	„ „ „ „	16,182
1858–59	1,217,438	725,655	„ „ „ „	11,147
1859–60	1,670,698	817,853	Free	
1860–61	1,955,656	1,036,728	„	
1861–62	1,101,844	686,083	„	
1862–63	1,228,684	822,892	„	
1863–64	1,369,556	954,649	„	
1864–65	1,582,341	1,165,901	„	
1865–66	1,445,153	745,352	April to July, 2 p. c.; afterwards free	
1866–67*	2,145,354	787,963	Free	Nil.
1867–68	2,226,201	1,504,126	„	
1868–69	2,405,005	1,335,069	„	
1869–70	2,368,452	1,422,076	„	
1870–71	2,131,399	1,258,527	„	
1871–72	1,893,322	1,081,097	„	
1872–73	2,231,578	1,256,356	„	
1873–74	2,223,917	1,143,744	„	

* Eleven months.

No. 26. Exports of undressed Hides and Skins from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	No.	£		£
1856–57		572,530*	3 per cent.	17,174*
1857–58		639,702*	„	19,149*
1858–59		544,680*	„	16,327*
1859–60		444,537*	„	13,165*
1860–61	(Not stated.)	661,725*	Free	
1861–62		794,137*	„	
1862–63		904,289*	„	
1863–64		897,575*	„	
1864–65		725,236*	„	
1865–66		609,803*	April to July, 2 p. c.; afterwards free	
1866–67†	9,060,464*	659,342*	Free	Nil.
1867–68	9,487,464*	988,282*	„	
1868–69	6,113,023	979,907	„	
1869–70	7,855,946	1,357,997	„	
1870–71	9,803,949	1,642,319	„	
1871–72	11,501,578	2,011,345	„	
1872–73	11,768,433	2,223,494	„	
1873–74	9,418,167	1,983,557	„	

* These figures include dressed Hides and Skins. † Eleven months.

No. 27. Exports of dressed or tanned Hides and Skins from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	No.	£		£
1856–57			3 per cent.	
1857–58			„	*See* Statement 26.
1858–59			„	
1859–60			„	
1860–61	(Not stated.)	Included with undressed Hides and Skins.	„	3,775
1861–62			„	3,303
1862–63			„	4,120
1863–64			„	4,389
1864–65			„	5,508
1865–66			„	5,968
1866–67 (11 months.)	Included with undressed Hides and Skins. *See* Statement 26.	*See* Statement 26.	„	5,291
1867–68			„	7,576
1868–69	4,991,016	272,991	„	8,198
1869–70	5,820,051	333,333	„	10,029
1870–71	6,496,201	378,500	„	11,773
1871–72	8,542,381	514,516	„	15,398
1872–73	11,221,182	697,921	„	20,858
1873–74	9,877,385	634,663	„	18,899

No. 28. Exports of Saltpetre from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Cwts.	£		£
1856–57	693,304	576,346	3 per cent.	17,295
1857–58	516,012	390,387	„	11,671
1858–59	713,452	528,096	„	15,814
1859–60	610,571	481,226	„	31,677
1860–61	527,737	661,614	2 rupees per maund	143,769
1861–62	631,206	828,378	„ „	171,765
1862–63	684,250	896,808	„ „	186,129
1863–64	539,711	722,165	„ „	146,921
1864–65	404,847	542,461	„ „	92,603
1865–66	483,980	605,376	1 rupee per maund	55,510
1866–67*	366,696	297,713	3 per cent.	7,689
1867–68	329,986	256,301	Free	Nil.
1868–69	397,019	310,758	„	
1869–70	490,116	394,870	„	
1870–71	482,940	440,554	„	
1871–72	432,210	397,251	„	
1872–73	518,982	536,314	„	
1873–74	451,197	464,974	„	

* Eleven months.

No. 29. Exports of Seeds from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Cwts.	£		£
1856–57	2,142,403	1,118,654	3 per cent.	34,148
1857–58	(Not stated.)	1,380,001	„	41,179
	Qrs.			
1858–59	1,373,697	2,059,445	„	61,642
1859–60	1,129,167	1,548,721	„	47,781
1860–61	983,882	1,785,526	„	53,327
1861–62	582,768	1,206,331	„	36,013
1862–63	844,791	1,833,851	„	54,840
1863–64	901,974	2,032,832	„	57,836
1864–65	661,694	1,912,433	„	55,198
1865–66	769,545	1,750,197	„	50,303
	Cwts.			
1866–67*	4,251,665	1,787,996	„	51,526
1867–68	3,983,104	2,160,572	„	66,676
1868–69	3,902,606	1,994,888	„	66,505
1869–70	4,379,784	2,308,942	„	72,286
1870–71	6,737,674	3,522,305	„	107,998
1871–72	5,124,765	2,728,127	„	84,846
1872–73	2,779,243	1,508,241	„	47,172
1873–74	4,433,270	2,361,423	„	72,601

* Eleven months.

No. 30. Export of Oils from British India, 1856–57 to 1873–74.

Year.	Quantity.*	Value.*	Rate of Duty.	Amount of Duty.
	Gallons.	£		£
1856–57	Not stated	179,164	3 per cent.	5,234
1857–58	Not stated	265,271	3 per cent.	5,688
1858–59	4,633,919	192,562	3 per cent.	5,650
1859–60	3,690,146	189,066	3 per cent.	3,797
1860–61	3,702,205	247,094	3 per cent.	6,961
1861–62	2,492,085	209,502	3 per cent.	6,278
1862–63	3,928,191	372,107	3 per cent.	11,539
1863–64	4,414,947	422,175	3 per cent.	13,162
1864–65	2,596,111	217,730	3 per cent.	7,759
1865–66	1,707,074	133,859	3 per cent.	5,327
1866–67†	723,398	125,927	3 per cent.	4,118
1867–68	1,298,790	213,991	3 per cent.	6,908
1868–69	2,576,772	380,081	3 per cent.	12,151
1869–70	2,150,084	325,030	3 per cent.	10,431
1870–71*	1,153,155	177,223	3 per cent.	5,504
1871–72	2,733,162	414,918	3 per cent.	13,588
1872–73	2,235,907	335,021	3 per cent.	10,709
1873–74	1,972,697	261,641	3 per cent.	8,557

* The value is that of all oils. The quantity is only given for vegetable (not essential) oils, which form about nine tenths of the total export.

† Eleven months.

No. 31. Exports of Sugar and other Saccharine Matter from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Cwts.	£		£
1856–57	1,493,344	1,702,510	Bengal and Madras, free to British Possessions, 3 per cent. elsewhere; Bombay, all free.	207
1857–58	882,485	1,058,360	" " " "	190
1858–59	1,008,145	1,303,203	" " " "	65
1859–60	794,990	928,549	Free	
1860–61	968,702	985,355	"	
1861–62	626,644	728,006	"	
1862–63	210,470	230,174	"	
1863–64	580,733	641,720	"	
1864–65	421,510	692,720	"	
1865–66	401,714	275,647	April to July 2 per cent., afterwards free	
1866–67*	165,275	102,962	Free	Nil.
1867–68	93,187†	88,449	"	
1868–69	450,051	373,507	"	
1869–70	346,295	276,946	"	
1870–71	307,144	244,031	"	
1871–72	372,897	288,048	"	
1872–73	630,938	492,743	"	
1873–74	294,818	227,823	"	

* Eleven months. † Besides 1,345 bags.

No. 32. Exports of raw Wool from British India, 1856–57 to 1873–74.

Year.	Quantity.	Value.	Rate of Duty.	Amount of Duty.
	Lbs.	£		£
1856–57	18,484,666	314,216	3 per cent.	7,424
1857–58	18,635,426	387,104	„	9,432
1858–59	15,688,196	349,895	„	8,666
1859–60	19,562,897	436,672	„	8,738
1860–61	21,385,429	478,890	Free	
1861–62	17,762,415	400,342	„	
1862–63	21,035,919	841,323	„	
1863–64	19,818,726	995,048	„	
1864–65	23,432,689	1,151,002	„	
1865–66	24,049,643	871,314	April to July, 3 p. c., afterwards free	
1866–67*	19,996,173	723,394	Free	Nil.
1867–68	16,580,575	589,484	„	
1868–69	19,608,746	615,125	„	
1869–70	13,117,904	465,238	„	
1870–71	19,185,039	661,653	„	
1871–72	24,122,562	902,900	„	
1872–73	20,394,718	838,042	„	
1873–74	20,333,372	938,336	„	

* Eleven months.

No. 33. Exports of Manufactures of Jute from British India, 1856–57 to 1873–74.

Year.	Quantity.		Value.	Rate of Duty.	Amount of Duty.
	Gunny Bags.	Gunny Cloth.			
	No.	Pieces.	£		£
1856–57	(Not stated.)		376,252	3 per cent.	—
1857–58	5,903,934	Not shewn separately.	217,194	„	—
1858–59	7,852,365		392,424	„	—
1859–60	6,468,101		333,977	„	—
1860–61	4,708,182		359,343	Free	
1861–62	7,487,443		186,845	„	
1862–63	6,509,002		131,628	„	Nil.
1863–64	6,764,404		111,207	„	
1864–65	5,606,529	—	102,858	„	
1865–66	12,945,195	—	311,831	April to July 1866, 3 p. c., afterwards free	9,763
1866–67*	(Not stated.)		366,754		
1867–68	7,093,518	393,836	291,018	Free	
1868–69	5,630,219	238,366	185,305	„	
1869–70	6,441,863	154,556	202,401	„	
1870–71	6,382,554	378,579	342,425	„	Nil.
1871–72	5,112,421	152,191	182,459	„	
1872–73	6,105,275	64,347	188,212	„	
1873–74	6,594,694	11,608	200,789	„	

* Eleven months.

No. 34. Quantity of Salt consumed in British India, 1856–57 to 1872–73.

Year.	Bengal.	Madras.	Bombay.	Sind.	Inland Customs Line.	Punjab Salt Mines.	Internal Branch, North-West Provinces and Oude.	Total (excluding British Burma).
	Maunds.	Maunds.	Maunds.	Maunds.	Maunds.	Maunds.	Maunds.	Maunds.
1856–57 -	8,254,576	6,040,712	4,161,148	—	3,018,987	1,257,543	—	22,732,966
1857–58 -	7,161,146	6,148,483	4,897,588	—	844,579	1,235,845	—	20,287,641
1858–59 -	8,438,233	6,720,843	4,592,777	—	2,793,954	1,351,391	—	23,897,198
1859–60 -	7,608,423	6,810,418	5,251,423	—	2,675,471	1,425,248	—	23,770,983
1860–61 -	9,150,394	6,879,613	5,227,450	—	3,195,753	1,696,709	—	26,149,919
1861–62 -	6,248,003	6,551,624	4,392,145	—	3,150,616	1,412,901	—	21,755,289
1862–63 -	8,216,417	6,618,930	5,105,770	—	2,626,092	1,420,898	—	23,988,107
1863–64 -	7,265,119	6,858,430	5,185,797	—	2,622,426	1,539,130	—	23,470,902
1864–65 -	8,454,473	7,252,729	5,076,290	7,338	2,971,457	1,562,107	—	25,324,394
1865–66 -	7,313,441	8,080,417	5,181,362	206	3,477,274	1,476,281	—	25,528,981
1866–67* -	7,186,725	7,458,492	3,928,662	15	3,548,353	1,555,585	21,961	23,699,793
1867–68 -	8,027,549	6,669,562	4,528,581	—	3,736,100	1,548,076	14,107	24,523,975
1868–69 -	7,188,924	7,187,473	6,015,331	82,892	3,770,337	1,662,971	14,168	25,922,096
1869–70 -	7,788,522	7,057,189	5,510,563	183,552	3,814,691	1,993,369	17,268	26,365,154
1870–71 -	7,957,221	6,805,862	5,438,704	1,556	3,736,592	1,628,565	33,987	25,602,487
1871–72 -	7,766,234	7,074,817	4,931,964	15	3,827,297	1,643,353	29,032	25,272,712
1872–73 -	7,981,286	6,896,226	5,922,000	133,702	3,978,371	1,780,478	32,659	26,724,722

* Eleven months.

Note One maund is equal to 82⅔ lbs., and 27⅔ maunds are equal to a ton.

No. 35. Revenue derived from Salt, 1856–57 to 1873–74.

Year.	Bengal.	Madras.	Bombay.	Punjab Mines.	Inland Customs.	Receipts.
	Customs Duty per Maund.	Selling Price per Maund.*	Duty per Maund.	Selling Price per Maund.	Duty per Maund.	
	Rs. A.	Rs. A.	Rs. A.	Rs. A.	Rs. A.	£
1856–57	- 2 8	- 1 0	- 0 12	- 2 0	- 2 0†	2,685,574
1857–58	- „	- „	- „	- „	- „	2,131,346
1858–59	- „	- „	- „	- „	- „	2,602,670
1859–60	Dec. 1859 - 3 0	Aug. 1859 - 1 2	Aug. 1859 - 1 0	April 1860 - 2 2	Dec. 1859 - 2 8	2,926,436
1860–61	Mar. 1861 - 3 4	April 1861 - 1 6	April 1861 - 1 4	- „	Mar. 1861 - 3 0	3,805,124
1861–62	- „	June 1861 - 1 8	- „	Sept. 1861 - 3 0	- „	4,563,082
1862–63	- „	- „	- „	- „	- „	5,244,150
1863–64	- „	- „	- „	- „	- „	5,035,696
1864–65	- „	Jan. 1865 - 1 11	Jan. 1865 - 1 8	- „	- „	5,523,584
1865–66	- „	- „	- „	- „	- „	5,342,149
1866–67‡	- „	- „	- „	- „	- „	5,345,910
1867–68	- „	- „	- „	- „	- „	5,726,093
1868–69	- „	- „	- „	- „	- „	5,588,240
1869–70	- „	Oct. 1869 - 2 0	Oct. 1869 - 1 13	- „	- „	5,888,707
1870–71	- „	- „	- „	July 1870 - 3 1	- „	6,106,280
1871–72	- „	- „	- „	- „	- „	5,966,595
1872–73	- „	- „	- „	- „	- „	6,165,630
1873–74	- „	- „	- „	- „	- „	6,150,662

* The selling price includes the cost of manufacture, estimated at 3 annas per maund.
† In some sections only 1 or 1½ rupees.
‡ Eleven months.

No. 36. Revenue derived from Opium, 1856–57 to 1873–74.

Year.	Bengal.		Malwa.		Average Price at Calcutta.	Duty at Indore, &c.	Gross Revenue.
	Chests sold.	Net Revenue.	Chests passed.	Net Revenue.			
	No.	£	No.	£	£	£	£
1856–57 -	42,272	2,700,712	29,212	1,159,677	89	40	5,002,400
1857–58 -	40,128	4,286,377	39,669	1,631,998	129	„	6.864,209
1858–59 -	30,881	3,898,114	36,377	1,448,277	149	„	6,146,342
1859–60 -	25,253	3,636,453	32,904	1,533,325	167	50†	5,887,778
1860–61 -	21,363	3,316,613	46,131	2,441,679	192	60‡	6,676,759
1861–62 -	24,063	2,471,347	37,047	2,438,458	161	70§	6,359,270
1862–63 -	32,833	2,959,789	51,228	3,239,409	143	60‖	8,055,476
1863–64 -	42,620	3,044,688	25,675	1,480,818	122	„	6,831,999
1864–65 -	54,486	2,883,542	32,622	2,100,882	94	„	7,361,405
1865–66 -	56,011	4,499,227	36,120	2,124,767	112	„	8,518,264
1866–67* -	38,680	3,873,754	30,592	1,851,263	125	„	¶ 6,803,413
1867–68 -	47,999	4,695,357	39,100	2,352,708	133	„	**8,923,568
1868–69 -	47,235	4,927,150	30,972	1,804,180	138	„	††8,453,365
1869–70 -	45,680	3,776,626	39,371	2,354,246	120	„	‡‡7,953,098
1870–71 -	49,030	3,632,325	39,506	2,398,709	112	„	8,045,459
1871–72 -	49,695	5,305,402	38,754	2,351,811	139	„	9,253,859
1872–73 -	42,675	4,259,162	44,003	2,611,261	139	„	8,684,691
1873–74 -	42,750	3,584,758	45,651	2,738,841	127	„	8,324,879

* Eleven months. † From 1st July 1859. ‡ From 1st September 1860.
§ From 1st October 1861. ‖ From 1st October 1862.
¶ Including 1,066*l.* from other Provinces.
** „ 1,382*l.* „ „
†† „ 1,924*l.* „ „
‡‡ „ 1,543*l.* „ „

No. 37. Revenue derived from Assessed Taxes, 1856–57 to 1873–74.

Year.	Nature of Tax.	Amount realised.
		£
1856–57 -	Moturpha, &c. - - - - -	108,418
1857–58 -	„ - - - - - -	107,826
1858–59 -	„ - - - - - -	111,247
1859–60 -	„ - - - - - -	219,425
1860–61 -	Act XXXII. of 1860.—Income Tax, 3 per cent. - -	1,103,612
1861–62 -	Acts XXXII. of 1860 and XVIII. of 1861.—Income Tax at 3 per cent., and Licence of Trades, &c.	2,054,696
1862–63 -	Act XXXII. of 1860.—Income Tax, 3 per cent. - -	1,882,212
1863–64 -	Act XXVII. of 1863. „ 2 per cent. - - -	1,483,622
1864–65 -	„ „ „ „ - -	1,281,817
1865–66 -	„ „ „ „ - - -	692,241
1866–67* -	- - - - - - -	22,127
1867–68 -	Act XXI. of 1867.—Licence Tax on Trades and Professions (Rs. 200 minimum).	653,848
1868–69 -	Act IX. of 1868.—Licence Tax on Trades and Professions (Rs. 500 minimum).	508,700
1869–70 -	Act IX. of 1869.—Graduated Income Tax (Rs. 500 minimum), 1 per cent. on salaries; afterwards raised to 2½ per cent.	1,110,224
1870–71 -	Act XVI. of 1870.—Income Tax, 6 pies in the rupee, (Rs. 600 minimum).	2,072,025
1871–72 -	Act XII. of 1871.—Income Tax, 2 pies in the rupee, (Rs. 750 minimum).	825,241
1872–73 -	Act VIII. of 1872.—Income Tax, 2 pies in the rupee, (Rs. 1,000 minimum).	580,139
1873–74 -	- - - - - - -	20,136

* Eleven months.

No. 38. Revenue derived from Stamps, 1856–57 to 1873–74.

Year.	Revenue.
	£
1856–57	622,165
1857–58	456,363
1858–59	593,213
1859–60	737,527
1860–61	1,182,781
1861–62	1,693,217
1862–63	1,489,638
1863–64	1,735,216
1864–65	1,972,098
1865–66	1,994,632
1866–67 (11 months)	1,803,773
1867–68	2,186,269
1868–69	2,306,971
1869–70	2,379,316
1870–71	2,510,316
1871–72	2,476,333
1872–73	2,608,512
1873–74	2,699,936

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STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION

OF

INDIA,

DURING THE YEAR 1874-75.

(PRESENTED PURSUANT TO ACT OF PARLIAMENT.)

Ordered, by The House of Commons, *to be Printed,*
8 *August* 1876.

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STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION OF INDIA

DURING THE YEAR 1874-5.

I.

ADMINISTRATION AND LEGISLATION.

ADMINISTRATION. Bengal.

THE year 1874-5 was the first year of Sir Richard Temple's administration of Bengal. His general policy may be gathered from his own words :—

"Heartily concurring in the principles of the many improvements which "have been introduced during recent years, especially during the incum- "bency of my immediate predecessor, I have steadily striven to carry out "these measures to their legitimate conclusions. Bearing in mind that these "are long-established provinces, with a settled system, I have endeavoured "also to preserve all that is good in the older traditions of the country, and in "the associations connected with its administration in former times. Deeming it "probable that speedy and extensive changes are not likely to be required, I "have preferred to take up such measures as seem to be called for either by "the state of public opinion, or by the needs arising from the actual circum- "stances of the people. But knowing that we cannot afford to stand quiet "without moving, and that stagnation generally ends in retrogression, I have "watched everything with a view to its safe and gradual improvement, and "have sought for the means of ensuring such progress as may be reasonably "demanded."

Parallel promotion in Bengal Civil Service.

The scheme of parallel promotion among the members of the judicial and executive branches of the Civil Service was explained in the last Report. Sir George Campbell, before he left India, placed on record his opinion that, the more he saw of the working of the scheme, the more he was convinced of its benefit. The arrangement has been accepted willingly by the officers, the requisite numbers volunteering for each branch. Sir R. Temple is generally in favour of persevering in the execution of this plan. "Its good effect," he says, "is very apparent in the executive branch, as it affords to the Magistrate-Collectors "salaries more proportionable to their duties, and thus tends to increased efficiency; "but it has not as yet produced any such perceptible effect in the judicial "branch, and it does not solve the difficult problem of the judicial training of a "civil servant before he begins to sit as a District Judge. As, however, it will cause "officers to become Judges at an earlier age than formerly, and to remain on "the Bench for the remainder of their service, it may be expected to produce "such advantage as arises from permanent devotion to this particular "line."

Sub-divisional system in Bengal.

Sir R. Temple has steadfastly adhered to the policy of making the Magistrate-Collector more and more responsible, directly and indirectly, for everything that

ADMINISTRATION. concerns the welfare of the people in his district. The "sub-divisional" system is an essential part of this policy. The average population of a sub-division is from one third to one half of a million, and in the midst of it is stationed a magisterial officer, European or Native, to whom also is entrusted all manner of administrative work. The convenience thus afforded to the people, and the machinery thus provided for encouraging improvement and checking mischief, are obvious. This system was extended by Sir R. Temple throughout the entire province.

Bengal Native Civil Service.

The addition made in 1872-3 to the strength of the Native Civil Service is proving to be very valuable. Much has been done to improve the position and prospects of this branch of the service, and the coincident elevation in tone, fitness, character, and reputation among the upper grades in all branches and departments is such, Sir R. Temple observes, as to cause hope and thankfulness to spring up in the mind of every well-wisher of the country.

The result of the annual examinations instituted by Sir G. Campbell for the subordinate Executive Service has been very satisfactory, as showing a widespread desire among the educated youths to qualify themselves for public employ; but, as care was taken at the outset not to make the standard unduly high, and as no limit was placed on the number of candidates, there is consequently an excessive number of passed men for whom employment cannot be found. In future a fixed number of places to be competed for will be prescribed, and the preliminary qualification for admission to the examination will be raised; as a rule, none will be allowed to compete for the higher class of appointments unless he shall have taken an university degree.

Punjab.

A measure relating to the Punjab, which had been long under discussion, was sanctioned by the Secretary of State at the close of the year under report, the object of which was, without introducing any radical change into the administrative system by a complete separation of the judicial and executive departments, to relieve the chief executive officers of the excess of judicial work which interfered with their efficiency, while the opportunity would also be afforded for the increased employment of Natives in the judicial administration. The measure comprises (1) the attachment of a Native Judge to each sub-district where the number of suits is large, and (2) the appointment in 24 districts of an Assistant having concurrent jurisdiction with the Deputy Commissioner. The scheme appears so far likely to answer expectations. It has immensely relieved the District Officer and Tahsildar of routine work, and thereby greatly strengthened the executive administration, without dissociating those officials from all connection with, and interest in, the judicial administration of their charges; it has at the same time made justice more accessible to the poorer classes of suitors, and opened out a career of honourable employment for a large number of deserving natives.

North-West Provinces.

Sir John Strachey assumed the office of Lieutenant Governor of the North-West Provinces on the 9th April 1874.

Steps were taken during the year with the view of securing to well-educated Natives a definite share in the higher posts under Government. It was notified that the posts of Assistant District Superintendent of Police, Inspector of Police, and Extra Assistant Commissioner in the Jhansi Commission, would in future, as a rule, be exclusively reserved for natives of the province.

The policy of delegating to local officers increased powers in matters of local detail was carried out in various directions.

Berar.

The amalgamation of the two divisions of East and West Berar into one revenue and administrative charge under one Commissioner, and the appointment of a Judicial Commissioner for the whole province, took effect from the 1st April 1874. The Resident states that, judging from the first year's experience, those two measures have been attended with beneficial results.

MUNICIPALITIES. Octroi duties.

The question of regulating town duties so as to prevent their becoming a burden on the transit trade has long engaged the serious attention of the Government of India. In a Resolution recorded by that Government in 1868 it was stated:—"Such duties should be restricted to articles actually consumed "in the towns, and should not be imposed upon articles of general commerce,

" or interfere with the natural course of transit trade. . . . . It is to little " purpose that the Imperial Government reduces or abolishes Customs duties in " the interests of trade, if municipalities are permitted to levy duties on articles " of commerce passing through their limits." MUNICIPALITIES.

The most direct means of effecting the desired object is the establishment of bonded warehouses, and the grant of refunds on re-exports, but this system is very generally reported to have proved ineffectual, the merchants usually not taking the trouble to claim the refunds.

It appears by the reports received from the Punjab and the North-West Provinces that a system has latterly prevailed in the municipalities in that part of the country of taxing at a reduced rate the whole of such imports into a town as are subject to octroi duties, leaving the incidence of the tax to adjust itself by a natural commercial process. The tax is reduced in the same proportion to a full rate as the local consumption bears to the import. This method can only be adopted when the local retail trade and the wholesale export trade are in the same hands, and it is not sanctioned unless the municipal committee believe that such is the case. There can then, it is urged, be no injury to trade, for the octroi must either be passed on to the consumer, or be borne by the trader himself as a deduction from the profits of trade. Assuming the former to be the case, so far as it falls as a transit duty, it cannot be passed on to the customer in the town where it is ultimately consumed, for the market rate there is dependent on competition from other quarters. It must, therefore, be borne by the consumer in the municipality; that is, the merchant must recover the whole octroi rate he has paid out of the local retail prices; or, if he cannot do this, he must bear it as a deduction from his profits, and as his share in local taxation. If that share appears to him excessive, he will complain, or reduce his operations, and thus its effect upon the local trade is the true test by which the system of rateable reduced duties must be tried. And as to this, there is, in the opinion of the North-West Provinces Administration, every reason to be satisfied with the judgment of the merchants themselves, upon whom, either as members of the committee, or through their representatives in the committee, devolves the primary responsibility of the tax and its rate of incidence, and who are altogether in favour of it.

While this practice has been instituted by the Local Governments with the express object of guarding against the danger above referred to, it is, nevertheless, opposed to the principles laid down by the Government of India; and the Secretary of State has pointed out to that Government that, if it be thought desirable to continue it, the greatest scrutiny and vigilance will be required to prevent its practically defeating the purpose which it is designed to accomplish.

Another plan adopted during the year in the Punjab, and previously in general use throughout the Central Provinces, is collection under direct management. It was ordered by the Punjab that in any town where the incidence of taxation exceeds 1 *s.* per head per annum, the duty should be collected directly instead of being leased to contractors. The result has been, as was anticipated, a financial success, while the measure has also conduced to secure more accurate statistics, and to prevent improper taxation of through trade, chiefly by ensuring refunds. The Chief Commissioner of the Central Provinces believes that the probable effect of this system will be such that " it cannot be long before muni- " cipal taxation comes to rest on a thoroughly sound foundation."

In the Madras Presidency yet another expedient has been resorted to, namely, the division of the proceeds of the municipal tolls between the municipalities and the Local Fund boards, on the ground that the through traffic is indebted to the boards for the maintenance of the roads. The proportions in which the proceeds should be shared would depend on local circumstances.

The Chairman of the Municipal Corporation of Calcutta reports that during 1874 there was complete harmony in the relations between himself and the justices. Of the latter there were altogether upwards of 100, of whom about 25 took an active part in the administration of the affairs of the city. Bengal.

The ordinary income of the Calcutta Municipality during 1874 was 266,839 *l.*, and that of 184 townships in the interior of Bengal aggregated 181,000 *l.* Both figures were an improvement on the previous year. The municipal system has now been extended to all the principal places in the province. The local objects for which taxation is raised are becoming more and more appreciated by the educated classes. The attention of the authorities is frequently

MUNICIPALITIES. drawn in the Native newspapers to the need of this or that municipal or sanitary work. Complaints of the pressure of taxation are very rare. The Native members of the municipal committees are generally appointed by selection, the elective principle having been introduced but to a small extent; they usually perform their duty with a fair degree of public spirit. The exercise of municipal functions is stated to be undoubtedly raising the character of the upper and middle classes of the people.

The consolidation and amendment of the law relating to the Calcutta Municipality belongs to a later period than the year under report. The main object of the measure is, in concession to demands made by many classes of the ratepayers, to introduce a representative system, whereby, instead of the present justices, a body of municipal commissioners would be established, the majority of whom would be elected by the ratepayers and the remainder would be appointed by Government.

A reorganization of the provincial municipalities is likewise in progress. The Bengal Municipalities Bill of 1872 was vetoed by the Viceroy, mainly on the grounds that it would comprehend many classes of people not prepared for it, and would lead to a sensible increase of local taxation. But Lord Northbrook observed, at the time, that the Bill contained many useful amendments of the existing law, and that it was not his desire to interpose an obstacle to improvements, provided they were not accompanied by any material increase of taxation, or by such extensive changes as those embodied in the Bill. Legislation has now been taken up once more with a view to consolidate and amend the several municipal laws, avoiding any provision which would be open to the above objection.

Madras. The Madras Municipality having requested the sanction of the Government for the appointment of Commissioners by election, the Government authorised the holding of elections on the occurrence of vacancies until half of the entire number should be elected by the ratepayers. The right of election of non-official members was, as a tentative measure, also conceded to ten other towns in the Presidency.

The aggregate revenue of all Madras municipalities was 106,438 *l.*, in addition to an opening balance of 17,465 *l.*

Bombay. The municipal finance of Bombay was unfavourably affected by the fall in the valuation of rateable property, which had been steadily proceeding since 1867, and continued in 1874. This circumstance, however, is not considered to furnish cause for dissatisfaction. Property in 1867 had acquired an exchangeable value far in advance of anything warranted by its value in use or by the purchasing power of its possessors, and that that valuation should now have descended to the legitimate worth of the commodity is not unnatural. The assessment is still considerably in excess of what it was in 1864, and it is considered probable that a natural level has now been reached. As the city recovers from the prostration of mercantile activity that followed losses occasioned by abnormal excitement, the replacement of capital will, it is hoped, lead to greater elasticity in the corporate income.

The diminution of income in 1874 would have been still more serious but for certain windfalls. As it was, it amounted to 298,132 *l.*, against 332,411 *l.* in 1873. The town duties amounted to nearly 60,000 *l.*; and as refunds reached over 16 per cent. of the collections, as compared with 12½ in 1873, and 2 per cent. in 1870, it is inferred that they are now allowed to the full extent permitted by law, and that the dues are divested of the character of transit duties.

During the year the new Municipal Act (VI. of 1873) was extended to all parts of the Presidency, except the capital and Sind. The aggregate receipts of the 168 "mofussil" municipalities, including an opening balance of 104,354 *l.* were 317,863 *l.*, of which octroi constituted 125,792 *l.* The incidence of taxation averaged 15 *a.* 11 *p.* per head.

Punjab. In the Punjab the municipal system was extended to 63 towns, making a total of 191. The aggregate income was 213,525 *l.*; octroi formed the sole source of income in 52 towns.

In five large municipalities in which there is a considerable English population the members are appointed wholly or in part by election; in others they are nominated from amongst the leading men of the principal classes of inhabitants.

MUNICIPALITIES.

That the system of election has not been further extended has not been owing to unwillingness on the part of Government to concede the privilege; on the contrary, the Lieutenant Governor has frequently expressed his readiness to grant an elective system to any municipality in which there is a *bonâ fide* desire for its introduction, and a reasonable prospect of the privilege of the franchise being honestly and intelligently exercised; but, in truth, save in localities where the inhabitants have been indoctrinated with the ideas of Europe, the system of election by a majority of votes is opposed to the wishes of the people, who prefer that the selection of their spokesman should be left to disinterested authority rather than to the capricious or corrupt action of numerical majorities.

North-West Provinces.

There were 81 municipal towns in the North-West Provinces, and their united revenue was 197,220 *l.* The proportion of octroi to the total income was 89·28 per cent. In many instances, where the system of refunds did not suffice thoroughly to protect the transit trade, the octroi was abolished or modified.

Ajmere.

The municipalities of Ajmere and Beawur are reported to have shown much energy and activity, and the careful discharge of their duties by the non-official members is stated to have been very creditable to their public spirit.

In both those towns every facility has been given for bonding goods in transit, but hitherto without any success, as the traders prefer paying the small tax, which permits them to take their goods to their own shops, to leaving them in a common warehouse. It is, however, firmly believed by the Commissioner that, so long as the rates remain low, there is no fear of trade being injuriously affected.

Central Provinces.

In 42 out of 56 municipalities in the Central Provinces octroi was the principal, if not the only, source of income. The total receipts from all sources amounted to 82,129 *l.*; those from octroi reached 49,733 *l.*, being an increase of 4 per cent. on the previous year.

British Burma.

Under an Act passed at the close of the preceding year, the first municipalities (in the proper sense of the term) in British Burma were established in the seven most important towns, the committees being selected among the official and non-official residents in different proportions in the different towns, and a president being appointed by the Local Administration. Sufficient time had not passed to show any decided results, but the committees generally are reported to have taken considerable interest in their new duties. The octroi tax has been nowhere imposed; the principal source of income is a land assessment rate, the entire proceeds of which at the close of the year were, as a tentative measure, made over to the committees for expenditure on the improvement of the several towns.

The receipts of the newly-constituted municipalities amounted to 79,461 *l.*; those of all municipal and town funds in the province aggregated 101,898 *l.*, against 65,513 *l.* in the previous year.

LEGISLATION. Government of India.

There were altogether 22 Acts passed in 1874-5 by the Legislative Council of the Government of India, some of which were of considerable importance.

Two enactments were passed to provide for the exercise in Assam and Sylhet by the Chief Commissioner of the powers heretofore exercised by the Government of Bengal.

Two measures related to salt. The Government having resolved to abolish the southern section of the Inland Customs line, it became necessary to make a slight increase in the salt duty in the Ganjam district, to lower the duty in Orissa, and to provide for a different mode of levying a lower rate of duty in the Central Provinces. The other Act has for its object the equalisation of the salt revenue throughout the Madras Presidency. An Act was also passed to consolidate and simplify the law relating to Inland Customs duties generally.

One Act has for its object certain amendments in the Code of Criminal Procedure. And another is designed to regulate the procedure of the High Courts in the exercise of their original criminal jurisdiction by the same law as that which applies to the other criminal courts of India.

In cases where a ship has been lost or abandoned, the Local Government, under the law heretofore in force, has appointed two persons to make a formal investigation, one of whom must be a magistrate, and the other a person conversant with maritime affairs. The principal object of the Indian Merchant

LEGISLATION.

Shipping Act of 1875 is to strengthen these tribunals by the addition of a member conversant with mercantile affairs. Other objects are to provide greater facilities for the attendance of witnesses, and to clear up some ambiguity in the previous law.

The rules for the regulation of the Burma fisheries have been embodied in a legislative enactment. By the custom of the country the exclusive right of fishing in British Burma belongs to the Government. It is not, however, intended to insist on the right of the Government to anything approaching its full extent. The right of angling with a rod and line is conferred on the public in all fisheries, except when for some special reason its exercise may be suspended. Powers are, moreover, taken by the Act to declare fisheries open to the public, and to grant rights of fishing free of all charge; and an examination of the fisheries has been set on foot with the view of determining what waters should be so released from the claims of the State, the intention being to set apart as free in every case sufficient waters for the use of such of the villagers as choose to fish to supply their own wants.

Acts were also passed during the year relating to the disposal of European vagrants, the local extent of certain Acts and Regulations, and the regulation of ports and port-dues.

Bengal.

Of four Acts of the Bengal Legislative Council only one is of sufficient importance to be mentioned here, namely, the Act for the better regulation of markets in Calcutta, which gives further power to the justices to acquire land and to borrow money for the establishment and maintenance of municipal markets in that city.

Madras.
Bombay.

No Acts were passed in Madras, and three in Bombay. Among the latter was one for the regulation of jails and the enforcement of discipline therein.

II.

JUSTICE AND POLICE.

STATE OF CRIME. Bengal.

AFTER allowing for improved reporting, and for a change in the classification of certain offences by the amended Code of Criminal Procedure, there was still shown a decided increase of crime in Bengal. This unsatisfactory feature is ascribed by Sir R. Temple to insufficiency of supervision over bad characters, the low degree of efficiency in the village police, and the chances of escape which our judicial system affords to the guilty, while all these causes combined induce unwillingness on the part of the people to search out offenders and bring them to punishment.

There was a decrease in serious offences against the person only, but those of a serious character against person and property rose from 1,202 to 2,010. Dacoity is still carried on; the attention of the police has been called to the discreditable fact that some of the old gang leaders remain at large.

Madras.

Much attention has been recently given in Madras to improved detection and repression of crime. During 1874 more precise rules were introduced for the registration of known depredators and suspected persons, and, as a consequence, the number of the former class included in the returns was reduced from 47,762 in 1873 to 21,245 in 1874, and that of the latter from 12,337 to 8,074. There was a slight increase in the number of dacoities, which was due to an unexpected outbreak of this crime in the districts of Tanjore, Madura, and Trichinopoly. The detective success of the police in dealing with dacoity was more marked than in any previous year.

There was a great number of re-convictions, which, it was apprehended, was indicative of the growth of a distinct criminal population in the Presidency.

Bombay.

In Bombay there was a general decrease of crime in 1874, which was no doubt partly due to increased police efficiency, but was mainly ascribed to the effect of plentiful harvests. Accordingly the decrease was chiefly in offences against property, and in minor offences against the person; in fact, there was a decided increase in the more serious offences under the latter head. In the Konkan, where drunkenness is not uncommon, Rutnagherry shows a decrease, but Canara, Tanna, and Colaba, an increase of crime. It is said that the inhabitants of 60 villages in the Alibagh taluka have taken the pledge to abstain from liquor.

In Sind, the statistics were not so satisfactory, but the apparent increase is probably due to the criminal classes being brought under stricter control. Several offences in former years did not come to light through being compounded. Sanitary regulations also have been more stringently enforced.

There was an unsatisfactory increase in the proportion of re-convictions and of habitual criminals. The Government has called attention to the necessity of making the imprisonment of such persons sufficiently arduous and irksome.

The year was marked by the presence in the Poona and Tanna districts of armed robber gangs; in the former district 16, and in the latter 31 dacoities occurred. Bodies of men entered villages with the utmost effrontery, and, owing to the terror they inspired, there was the greatest difficulty in obtaining information against them. An armed police force of 175 men was detailed to operate against these dacoits, and rewards ranging from 100*l.* downwards were announced for the capture of their leaders. A great deal of hard work and exposure was undergone by the parties in pursuit, the ghâts being an inclement country during a monsoon; but the gang was only once surprised and then unsuccessfully. But though the leaders escaped, eight of the robbers were captured and sentenced to penal servitude for life, and a check was given to the restlessness excited.

Punjab.

The Punjab statistics show a steady decrease of serious crime; and there was also a diminution of minor offences against property. To this satisfactory result many causes have contributed, but no small share is due to the improved working of the police. The per-centage of convictions to cases reported rose to 43, from 38 in 1872, and 40 in 1873. Minor "bailable" offences increased, but this was simply the result of multiplied local laws, and increased attention paid to their enforcement.

STATE OF CRIME. In the criminal courts there was a marked increase in the severity of punishments. The number of re-convictions diminished from 2,306 in 1873 to 1,761 in 1874.

North-West Provinces. The returns of crime for the North-West Provinces showed a large increase both in petty and serious offences. Dacoities rose from 99 to 120. There was also a large increase in the jail population; this had continuously risen for three years, but in 1874-75, a year of comparative prosperity, the numbers went up to an unprecedented extent. The crime statistics are always influenced by prices, which were high in the year under review notwithstanding that the crops were good. The Lieutenant Governor thinks, however, that the apparent increase is due in great measure to improvement in reporting. A circumstance which partly explains the large number of prisoners is the exercise by magistrates of the power conferred on them by a recent Act to imprison or commit for trial persons of dangerous character who cannot give security. With the increase of cases, there was a satisfactory increase in the proportion of convictions.

Oude. There was a large decrease in the number of criminal offences in Oude. The falling off was general throughout the province, and was not confined to any special class of crime; but it was most marked in cases of housebreaking or trespass for the purpose of theft. Cases of culpable homicide fell from 79 to 59; on the other hand, dacoities rose from 32 to 41.

Assam. In the Garo Hills district there was very little crime, and the cases that occurred were not of a serious nature. The administration of justice is carried on in the simplest form, and with very satisfactory results. The Deputy Commissioner was enabled, during the year, to bring to a satisfactory and peaceable conclusion many blood feuds of long standing.

Ajmere. There was a material increase in almost all classes of crime in Ajmere, coupled with a falling off in detection, and also in the success of prosecutions. Thefts and burglaries are, and always have been, the normal crime of the district. There appears to be a steady annual increase of crime, pointing apparently to inefficiency of police action.

Central Provinces. The statistics for the Central Provinces show a great improvement on the preceding year in the amount of crime; the only unfavourable point of comparison is that some crimes of a more serious nature were committed. These good results are due mainly to the cheapness of food consequent on prosperous harvests, but also to the successful action of the police in proving former convictions, and in using their legal powers to prosecute bad characters.

The Chief Commissioner has impressed upon magistrates the ineffectiveness, if not harm, of the inadequate punishments frequently awarded. Too short terms of imprisonment, he observes, serve neither to reform the criminal nor to deter him from the commission of fresh offences.

Berar. In Berar there was a satisfactory decrease in serious crime, as in fact had been the case during the past few years, special surveillance being exercised over criminal tribes.

British Burma. In the British Burma Report for 1873 a satisfactory decrease of violent crime since 1870 was shown. In 1874, murder increased from 60 to 72 cases. Dacoity continued to decline, not only in the number of cases, but in the character of the crime; since the close of the official year, however, the daring operations of the Pyagalay gang, the suppression of which cost the life of the officiating Inspector General of Police, pointed to the need of special police vigilance at a time when excitement is fostered by political events.

There appears to be a tendency on the part of magistrates and judges to undue leniency in awarding punishments for crimes of violence.

There was a large rise in the number of offences cognizable by the police, and an unsatisfactory decrease in the proportion of convictions obtained, though, with regard to the latter point, the proportion is said to compare favourably with that in other provinces. The classes of crime in which the increase occurred were minor offences against the person and against property. There is stated not to be in British Burma that connection which is observed in other provinces between the prevalence of theft and dearness of food. The year

under review was one of remarkable prosperity. The increase in cases of theft is explained on the theory that those who formerly indulged in the more violent crimes have become more timid, and content themselves with minor breaches of the law. There were also special temptations during the year in the transit through the country of large sums of money in connection with operations in paddy. STATE OF CRIME.

The per-centage of re-convicted prisoners increased from 17 to 18·57. This is mainly attributed to a system of classification which has been adopted by the jail department, and does not altogether, if at all, point to an increase in the number of habitual offenders.

An interesting report has been drawn up by Mr. H. R. Cooke, of the Bombay Civil Service, on the repression of female infanticide in the Bombay Presidency. He introduces his report with the following remarks on the origin of the crime:— INFANTICIDE. Bombay.

"Its origin is obscure. Infant sacrifice is not required by the Shastras, nor "tolerated by Hinduism. The murder of a female infant is indeed declared to be "a sin above all sins; a man may be freed from the guilt of killing a Brahman, "but nothing can remove the taint of infanticide; and yet, contrary to the voice "of religion, contrary indeed to the voice of nature, it is to be feared thousands "of this Presidency have not only been guilty of the crime, but have habitually "and systematically practised it, until it became a custom which they openly "avowed; a custom so deeply-rooted that, after years of perseverance and patient "endeavour, it is yet doubtful whether the last trace of it has been eradicated. "Yet, though the origin be obscure, the reasons which perpetuated the crime "are very clear, and divide themselves into: (1) such as render the marriage "of a girl a source of great difficulty and expense; (2) such as render "her non-marriage a calamity; and (3) such as tend to a lack of parental "affection."

In 1821 Government authorised the throwing of all fines levied on Kattywar Chiefs, for other offences as well as for infanticide, after indemnifying the sufferers by each, into a fund to be distributed in portions to female children preserved. In 1825 the Gaekwar readily agreed to give up his share of the fines to the same purpose, and thus originated what has since been known under the name of the Infanticide Fund. It has been used to encourage and protect informers, to reward the preservation of female offspring, and to assist the indigent to marry their girls.

Thus matters remained until 1834, the success attained being very partial and delusive. In this year, however, Mr. J. P. Willoughby awakened fresh interest in the undertaking. He began by obtaining returns of the Jadeja population from the Chiefs, and suggested (1) the taking of a more accurate census in the following year; (2) that the Chiefs be required to send half-yearly registers of births, betrothals, marriages, and deaths, each of his own clan; (3) that the annual report be made with greater regularity; (4) that a fresh proclamation be issued to all the Chiefs to remind them of their engagements and warn them of the alertness of Government; and (5) that a circular be sent to all the other Rajpoot tribes of Kattywar, asking them to refuse to give their daughters in marriage to Jadejas except under a stipulation that the female issue of the marriage be preserved. These measures were approved by Government, and forthwith adopted.

The diffusion of education was also looked to as a potent counteracting agency.

The result of the repressive measures adopted in Kattywar has been that the practice has ceased as a custom; the last conviction having taken place so long ago as 1854, and no cases of suspicion even having been recently reported. The proportion between the sexes in 1872 was 10,461 males to 9,513 females.

In Kutch the measures adopted were substantially the same as those resorted to in Kattywar.

A census was at first objected to by the Chiefs, but in 1840, at the Rao's request, they executed a deed, binding themselves (1) to render annually a correct census; (2) to report all premature and still births; (3) to give early information of all cases of crime, and in default to submit to a penalty; and (4) to allow all fines inflicted to constitute a fund in aid of the marriages of indigent Jadejas.

The reports from this State are by no means so favourable as those from

INFANTICIDE.

Kattywar. The number of Jadeja females compared with that of males was in 1873 as 4,272 to 8,371, a proportion far below what it should have been, though in 1840 the proportion was only 335 females to 4,912 males. The Resident, however, expresses his opinion that death now only results from neglect after birth; and he suggests that a fresh proclamation be issued, drawing the serious attention of the tribe to the unfavourable results shown in the returns, and that increased vigilance be displayed, and an example made of one or two suspected villages.

It should be mentioned that the operations for the repression of the crime in Kutch are conducted wholly by the Durbar, whereas elsewhere they are under the direct control of the Political Agents. The Rao has expressed his determination to continue unrelaxed his efforts to eradicate the practice within his territory.

The results accomplished in Pahlunpore and Mahee Kanta are on the whole satisfactory. The returns from the latter show the number of females belonging to the infanticide tribe to be steadily on the increase.

But Mr. Cooke points out that in all the above territories the success attained cannot be regarded as permanently secure so long as it continues to be considered a disgrace to own a maiden daughter of mature years. The only solution of the difficulty appears to be to persuade the Rajpoot chiefs to enter into an engagement that they will not give their daughters to any tribe who will not give them their daughters in return.

The repression of infanticide among the Kunbis of Gujerat has been a much more easy task, and they have, by certain customs recently instituted among themselves, removed from themselves every inducement to a return to former evil practices.

North-West Provinces.

The measures for the suppression of infanticide in the North-West Provinces progressed satisfactorily during 1874-5. The proportion of girls to the total number of infants rose from 28·9 per cent. at the beginning of that year to 30·9 at its close. The great prevalence of the crime is demonstrated in the Administration Report by various tests, of which the most important is the following. It is deduced from a comparison with English rates, after making allowance for the different birth-rates in the two countries, that the per-centage on the total infantile mortality ought to be, for boys 24·65, and for girls 20·41; whereas the rates in the proclaimed districts actually are, for boys 22·57, and for girls 22·38. It is thus clear that many girls are murdered, and that of those who survive their birth, many die through violence or neglect. It has been established that the crime has no existence in the Goruckpore district.

Oude.

The statistics show that infanticide is not at all generally practised in Oude.

MAGISTRATES.
Bengal.

The rule of the Code of Criminal Procedure by which a magistrate may, in petty criminal cases, hold a summary trial, and pass a sentence of short imprisonment or fine, from which sentence there can be no appeal, was at first regarded with disfavour and apprehension by the upper classes in Bengal. This dissatisfaction is stated, however, to be decreasing, as the rule is seen to be worked in a considerate manner, without undue haste, and without any disposition to deal harshly with respectable persons. On the other hand, the rule affords to the poor complainant a better chance than formerly of obtaining redress, tends to check personal oppression, and conduces to the enforcement of social order. The Government have from the first arranged that trials under this rule should be held by honorary magistrates sitting together with the ordinary magistrates, such a course being likely to win the public confidence. The benches thus formed have disposed of a considerable number of these cases, apparently in a satisfactory manner.

The rapid disposal of cases has promoted the public convenience, and the relief afforded to judicial officers has been considerable.

The policy of associating honorary magistrates in the administration of criminal justice has been fully recognised and acted upon in Bengal, where more than 6,000 cases were decided by them during the year under report.

Madras.

The powers of the magistracy in Madras were extended in several ways. The power of summary trials was conceded to magistrates in certain positions, and in 36 towns the experiment was made of appointing benches of honorary magistrates,

with a salaried magistrate as president, who should be nominated by the magistrate of the district. MAGISTRATES.

In the North-West Provinces the same system of appointing honorary magistrates for the disposal of petty criminal work was inaugurated during the year, and there was every reason to anticipate its success. North-West Provinces.

There were 124 stipendiary and 80 honorary magistrates in the Central Provinces; 33·9 per cent. of the work was performed by the latter. The Chief Commissioner, while fully appreciating their services, particularly in the determination of petty disputes, cases of assault, defamation, and similar matters, hesitates to multiply the number of honorary magistrates without sufficient guarantees that the persons selected for the office shall be in every respect qualified. Central Provinces.

Except in the matter above referred to of inadequate sentences, the magisterial work in the Central Provinces is stated to be well performed. Cases are promptly disposed of, the procedure is correct, and appeals are comparatively few.

The Lieutenant Governor of Bengal having made special inquiries as to the estimation in which the police are held by the Native public, the result was not so favourable as might have been hoped; in some quarters they are more complained of than any other institution in the country. At the same time most of the thoughtful and well-informed Natives regard the organisation introduced in 1862 as a step in the right direction, and would regret any retrogression from its principles. The most conspicuous need at present is the raising of the status of the lower grades of the Native officers. POLICE. Bengal.

The number punished in the Bengal police was somewhat less than in the previous year; but the large number of men dismissed shows that the discipline of the force was far from satisfactory. Complaints of torture and oppression were however infrequent.

The conduct of the Bombay police continues to improve. In Bombay city, the dismissals numbered 37, and the resignations 3, as compared with 55 of the former and 9 of the latter in 1873; and these favourable returns are borne out by the testimony of both the late and the present chief magistrate, to the efficiency and good behaviour of the force. Bombay.

The per-centage (throughout the Presidency) of convictions to persons brought to trial was 74, of convictions to persons arrested 62, and of stolen property recovered 64. The per-centages were especially good in the Kaira district, viz., 95, 63, and 69, respectively. The police are not usually so successful in tracing up gang and other robberies as in other serious crime; special measures appear to be required to check the depredations of wandering and criminal tribes in the southern districts, and an inquiry into the whole subject has been directed.

Excluding the Bombay town police, about 28 per cent. of the force could read and write, or 560 more men than in the previous year.

The conduct and working of the police in the Punjab were satisfactory. The per-centage both of dismissals and of resignations was decidedly lower than in the preceding year. A measure was carried out which, it is hoped, will tend to still further improve the efficiency of the police. They had been formerly divided into separate bodies, the members of which were not interchangeable, owing to differences in rates of pay. These various sections have now been merged in the general force as regards pay and promotion. Punjab.

In the police force of the Central Provinces, 90 per cent. of the officers, and 31 per cent. of the men, were able to read and write. There were no cases of very serious crime, but the number of both officers and men departmentally punished was considerable. Absence without leave was a frequent offence in some districts. Central Provinces.

The general conduct of the police towards the people is commended, and the confidence of the people in them has increased.

In Berar also the conduct of the police is reported to have been generally satisfactory, a decidedly fewer number having been punished or dismissed. Berar.

Among the police of British Burma, whose aggregate force was 6,552, British Burma.

POLICE. 655 men were discharged for misconduct, and 1,124 resigned. Special difficulties arise from the national temperament of the Burman police; they have impulsive energy, but are deficient in perseverance and patience. The number of men promoted for specially meritorious service was 122, as compared with 41 in 1873. The frequent changes in the force prevent much being done in the way of education.

JAILS. Bengal. Continued attention has been given in Bengal to the object of making prisons not only deterrent but a means of reforming the criminal. It is sought to raise the low character of the convicts by judicious rewards for good behaviour; to carry out instruction in reading and writing, and to enforce the classification of prisoners, both in the workshops and in the sleeping wards. Numerous substantial improvements and important reforms were effected, and discipline is reported to have been greatly improved.

The mortality in the Bengal prisons is very unsatisfactory, especialy considering the efforts that have been made of late years to improve their sanitation. The general death-rate in 1874 was 5·59, but, high as is this figure, the real extent of the evil is only seen by looking at particular jails. In one, for instance, the rate was 27·02 per cent.; in another, 17·68; and in another, 12·86. No satisfactory explanations of this state of things have been afforded by the medical officers, but the Local Government is apparently alive to the importance of searching inquiry being made into the causes.

Madras. In the prisons of Madras the system of "marks," for earning by good conduct and industry the remission of a portion of the sentence, was found to answer well.

Of 14,554 convicts admitted in 1874, only 1,106 were well educated. Of the whole number in jail during the year (23,665), 1,254 were taught to read and write fairly, and 2,598 to do so a little.

The health of the prisoners in general was good, the death-rate having been 2·68 per cent. on the daily average strength. In some jails, however, the mortality was unusually high.

Bombay. The jail accommodation in the Bombay Presidency appears to be far more deficient than in the rest of India. In buildings constructed for 6,845 prisoners, although even that allowance is apparently inadequate, there was a daily average of 8,068.

The Bombay Government advocate the use of the reward and mark systems, leading to remissions, which afford a valuable means of strengthening the hands of the prison officers, and raising the status of the prison inmates, and not the least as distinguishing the hardened from the first offender.

Much care appears to be taken with regard to juvenile offenders. The working of the Poona Juvenile Prison was very satisfactory; the health and conduct of the boys there was good. Their education is both scholastic and mechanical, and, on their leaving the prison, means are taken to ascertain their future career, without, however, permitting any police surveillance. Here the year passed without any re-convictions, but among juveniles generally in the district and central jails the proportion to the total imprisoned was as high as 10 per cent.

The importance of segregation of juvenile prisoners has been pressed upon the jail superintendents.

Punjab. Satisfactory progress was made during the year in the construction and alterations of jail buildings in the Punjab, but still much remains to be done before the jail accommodation of the province can be considered as sufficient. Of 19,518 prisoners admitted during the year, 19,000 were quite illiterate (including all the females), 362 could read and write a little, and 156 could read and write well. During their confinement 1,180 males and 13 females are reported to have learnt to read and write well, and 7,618 males and 120 females to have made slight progress.

The death-rate in the Punjab jails fell from 4·87 to 3·25 per cent. Although this rate is high, the Lieutenant Governor does not think it can be said that the state of the prisons in the Punjab is generally insanitary, for a considerable proportion of prisoners are shown to have benefited in health. The mischief chiefly arises from outbreaks of infectious disease in a few jails, and no efforts are spared to guard against the occurrence of such outbreaks.

JAILS.

Arrangements are being made, as funds permit, for the segregation of newly-arrived prisoners; elaborate rules are in force for securing cleanliness and preventing overcrowding; the scale of diet and clothing allowed is very liberal, and in the event of its being considered inadequate in the case of any individual or class by the medical officer of the jail, he has only to represent the matter to the Inspector General, and on his concurrence the necessary increase is at once allowed.

North-West Provinces.

There was a terribly high death-rate in the Goruckpore and the Meerut Central Jails, being in the former 20·14, and in the latter 12·83 per cent. of the average strength. This was owing to the unhealthiness of the districts, to combat which drainage works on a large scale and at a great cost have been undertaken. At Goruckpore there was an epidemic of cholera. There were also high death-rates in other jails, which are to a great extent attributed to the effects of the scarcity.

Oude.

Although the average daily strength in the Oude prisons was 1,381 above the proper accommodation, the death-rate fell from 2·51 to 1·64 per cent.

The results of jail instruction in this province showed a slight falling off on the preceding year. Of 12,535 persons imprisoned, 146 could read and write well, and 213 a little; during the year, 377 were taught to read and write a little, against 258 in 1873, but only 10 were taught to do so well, against 66. A system was introduced on 1st April 1875, under which certain prisoners in the central jail will be selected, educated, and trained under free teachers, and, when qualified, will be transferred as schoolmasters to the district jail; and eventually every prisoner will be taught for one hour daily.

Ajmere.

The administration of the Ajmere Jail is reported to have been thoroughly successful; the health of the prisoners was good, and their general conduct satisfactory; there was no overcrowding; the diet was ample; and restrictions and measures were taken to provide a more systematic education for prisoners below 50 years of age.

Central Provinces.

The conduct of prisoners in the Central Provinces was on the whole good. The short sentences usually passed are a great hindrance to educational benefit being received by the prisoners. Of 6,931 males and 938 females incarcerated during the year, the numbers totally unable to read or write were 6,523 and 931 respectively.

The death-rate in the jails taken together was 3·6 per cent. of the average strength. Ulcers and dysentery were the causes of most deaths, but in all cases these diseases are stated to have been brought into, and not contracted in, the prison. Increased sickness, as compared with the previous year, prevailed among the free population also. There are no jails in the province which can be called unhealthy.

British Burma.

Owing to the fertility of Pegu attracting population in preference to the other divisions of British Burma, the jails in that part of the province were overcrowded, while those in Arakan and Tenasserim were comparatively empty; and this circumstance necessitated frequent transfers of prisoners. The jail at Thyetmyo was enlarged, and a similar measure was in contemplation for that at Bassein, while a further remedy has been applied in the establishment of lock-ups for short-term prisoners. The jails generally maintained their reputation for healthiness; the death-rate was only 2·98 per cent. on the average strength.

The per-centage of convicts employed as jail officers to the average daily number of prisoners was 3·38. It has been decided that long-term prisoners shall be eligible for jail appointments; the prospect of this indulgence will, it is hoped, operate beneficially on the character of such convicts.

Of 8,396 prisoners, 1,216 could read and write well, and 2,785 a little. Contrary to the experience in other provinces, it was found that 31 out of 355 women had received some education.

CIVIL LITIGATION.

Bengal.

The business of the Civil Courts of Bengal, which had increased rapidly during recent years, remained nearly stationary in 1874. The great majority of the cases relate to small money claims, or to rent of land. The working of the Courts gives satisfaction to the people and secures their confidence in the main, though there are frequent complaints of delay in the disposal of cases. The Courts are looked up to by them as a palladium of their rights and privileges.

CIVIL LITIGATION. Universal opinion attests the integrity and probity of the Native judges, though as to their competency there is more hesitation. Those, however, who have been appointed of late years are men of superior stamp and education. The Native bar, also, is fast rising in position.

Sir R. Temple has used his influence to encourage the registration of deeds and assurances, which can nowhere be more important than in Bengal, where so large a portion of the people come within the category of borrowers or lenders, where landed property is undergoing much subdivision, and where land is constantly being leased temporarily or permanently, or being transferred by every form and variety of transfer. The system is being adopted by the people more and more, in the case not only of compulsory but of optional registration, although the small proportion which the latter bears to the former shows that the system admits of being still further popularised.

Madras. In Madras there has been noticed of late years a gradual falling off in the proportion of suits instituted in the superior courts.

Registration is stated to have steadily increased in this Presidency during the last few years.

Bombay. There was, during 1874-5, a general decrease of civil litigation, and 99 per cent. of the suits instituted were for sums of 50 *l* and under. Connected with this circumstance is the important subject of the indebtedness of the cultivating class, on which remarks will be found in the chapter on LAND ADMINISTRATION (p. 28).

Punjab. A reference to the returns of other provinces shows a comparatively large amount of litigation in the Punjab, but this is explained by (1) the wide diffusion of property and credit, there being upwards of three million proprietors of land, beside other petty capitalists; (2) the legal limitation of sales of property compelling creditors to limit their advances and to enforce prompt adjustment of accounts; and (3) the cheapness and accessibility of the courts, and expeditious disposal of suits. On the whole, the Lieutenant Governor thinks that the statistics may be accepted as indicative of healthy progress, continued prosperity, and increasing confidence in the courts.

North-West Provinces. A decrease of litigation in the North-West Provinces is chiefly due to a new regulation by which many suits formerly cognizable by the civil are now heard in the revenue courts. It is also attributed partly to the unwillingness of creditors to press for their money during the early part of the year when prices were unusually high, and partly to the abundant khureef harvest, which assisted many debtors to come to terms with their creditors without the intervention of the courts.

Oude. In Oude there has been annually a falling off since 1872 in the number of civil suits instituted. In 1874 the decrease was in suits of a value not exceeding 2 *l.*, while there was an increase in those for higher amounts. The suits are said to be comparatively few in which the defendants conduct their own cases.

Ajmere. There is comparatively an enormous amount of civil litigation in Ajmere, and the number of arrests and imprisonments for debt is extraordinary. No satisfactory explanation has been afforded, but the increase in 1874 was probably connected with the good harvests, which created property from which creditors might realise decrees.

Central Provinces. The total number of civil suits instituted in the Central Provinces was 76,639. They were of a petty nature, chiefly for the recovery of small debts. In connection with the large amount of litigation, the attention of the Local Administration has been drawn to the fact that not one-half of the decrees passed are executed. It is believed that a very large proportion of decrees are, immediately on being obtained, superseded by fresh bonds, and thus the deciding of a suit and the passing of a decree are not by any means the end of a transaction, but only one stage of a debt case which is for ever before the courts. The Code of Procedure lays down that a payment on a decree must be made through the court, and if not so made shall not be recognised by the court. If therefore, after such private arrangement, the creditor were to sue the debtor on a fresh bond, the court would not give to the latter the benefit of any payment he

had made. If the creditors were to use their power to the uttermost (which it is believed they do not do as a rule), their debtors might be reduced to a state quite as hopeless as slavery; and the more so as, although our law does not regard the son as responsible for his father's debts, Hindoo custom, which the people have not yet ventured to break through, maintains the opposite view. CIVIL LITIGATION.

The administration of civil justice in British Burma is stated to have been on the whole satisfactory, and, as far as can be judged, acceptable to the people. Most of the work is disposed of by Native judges. In the present year a second Court of Small Causes had been established at Rangoon, presided over by a Burman judge, and the use which was made of this court showed in a remarkable manner the confidence which the Burmese have in a competent judge of their own race. Additional evidence of the popularity of this judge has resulted in his being attached permanently to the court. British Burma.

There is no evidence of any increasing appreciation by the Natives of the advantages afforded by the registration of contracts. The people in the interior live in a most simple manner, seldom borrowing large sums of money, and whatever private transfers of land or immovable property are effected do not often end in litigation.

Civil suits in Northern Arakan increased during the year from 41 to 79, showing a greater willingness on the part of the tribes to substitute a recourse to our courts for their own arbitrary appeals to force in satisfaction of their disputes.

III.

FINANCE.

REVENUE AND EXPENDITURE.

The following is a statement of the Ordinary Revenue and Expenditure in India and England, compared with two preceding years:—

	1872-3.	1873-4.	1874-5.
	£.	£.	£.
Revenue - - - - - - -	50,219,489	49,598,253	50,570,171
Expenditure - - - - - -	46,343,316	49,968,569	49,006,412
Guaranteed Interest, less Net Traffic Receipts - - - - - -	2,110,501	1,437,352	1,244,562
£.	48,453,817	51,405,921	50,250,974
Surplus - - -	1,765,672	—	319,197
Deficit - - - -	—	1,807,668	—

The principal heads of Revenue are shown in the following summary:—

	Land Revenue, including Fisheries.	Opium.	Salt.	Excise.	Customs.	Stamps.
	£.	£.	£.	£.	£.	£.
India (General and Political) - - -	61,559	- -	70,138	17,194	- -	19,081
Madras - - -	4,635,487	- -	1,331,569	605,892	321,025	492,878
Bombay - - -	3,688,076	2,953,804	797,122	378,099	739,068	463,936
Bengal - - -	3,645,725	5,602,825	2,676,363	563,467	1,091,077	895,452
Punjab - - -	2,004,595	- -	841,253	97,685	86,387	240,381
North-West Provinces -	4,259,179	- -	476,612	203,606	35,901	355,492
Oude - - - -	1,355,025	- -	1,688	73,047	2,346	92,894
Assam - - -	333,503	- -	- -	137,869	- -	48,488
Central Provinces -	584,919	- -	18,524	128,629	10,402	92,309
British Burma - -	728,425	- -	14,032	140,655	392,273	57,131
TOTAL - - - £.	21,296,793	8,556,629	6,227,301	2,346,143	2,678,479	2,758,042

Under Expenditure, the Army absorbed 15,375,159 *l.*, and Interest on Debt 4,834,003 *l.* On Ordinary Public Works 2,504,230 *l.* was spent, and on Railways 239,277 *l.*; if to these two items be added the Extraordinary Expenditure of the year (4,249,571 *l.*), the total outlay on Public Works amounts to 6,993,078 *l.* The amount spent on Famine Relief was 2,237,860 *l.*, which added to the expenditure on this account in the previous year makes a total of 6,102,533 *l.*

The Extraordinary Expenditure was divided as follows: Irrigation, 1,235,391 *l.*; State Railways, 3,014,180 *l.*

OPIUM AND EXCISE. Bengal.

The net revenue of the Opium Department in Bengal was 3,264,530 *l.*, against 3,584,766 *l.* in 1873-4. There were sold 45,000 chests of provision opium, being an increase of 2,250. The price realised per chest was *Rs.* 1,207. 0. 4, against *Rs.* 1,265. 13. 4.

In consequence of memorials received from European and Native gentlemen, expressing their apprehension that the consumption of spirits and drugs is increasing to a harmful extent among the people, and is indirectly encouraged by the excise system, the matter has been fully investigated by the Bengal Government, with the result that the amount of consumption per head of the whole population is found to be infinitesimally small, and that the excise system, whatever it may have done in past times, now offers no encouragement to intemperance, but rather tends to impose a check upon the consumption. The prohibition altogether of production and consumption would be quite futile. Opium and Excise.

In his answer to the memorialists Sir R. Temple thus expressed himself:—

"The memorialists may be sure that the Government entirely agrees with "them in thinking that any general excess in the consumption of liquors, spirits, "or drugs, is really a national evil; that, so far from encouraging its existence "or its growth for the sake of the revenue, the Government already does, and "will willingly do, everything in its power to impose a check or to exercise "repression upon any excess; and that the efforts of Government in this direc- "tion are only limited by considerations of the practicability or otherwise of "attaining actual success in such repression.

* * * * * *

"The result of the fiscal regulations of Government now is to render liquors, "spirits, and drugs dearer than they would otherwise be; to place some artifi- "cial restrictions on the production and sale of these articles; and *pro tanto* to "impose a check on consumption. It is impossible to doubt that but for these "fiscal regulations the consumption would be greater than it is; and that, if the "present system of taxation upon these articles, and the consequent interfer- "ence on the part of the State, were to be abandoned, there would be an in- "crease in the consumption. If it be an object morally (as I quite admit it to "be) to do all we properly can to prevent the consumption exceeding reason- "able limits, then that object is in some degree effected by the fiscal interfer- "ence, without which, indeed, even this degree would not be attained. In "making its arrangements, the Government is not influenced by the desire of "fiscal advantage, nor by the fear of fiscal loss. If any measure or proceeding "of this nature could be demonstrated to be capable of checking excessive con- "sumption, the Government would not be deterred from introducing it by the "prospect of diminution in the revenue. If such measure or proceeding should "promise an enhancement of the revenue, the Government would refrain from "adopting it if there were reason to fear that an excessive increase of consump- "tion would be a concomitant result.

"But it must not be forgotten that, in making its arrangements, the Govern- "ment is never free from the question as to how far it is possible to check the "consumption. It is not possible to stop the consumption altogether, nor "even to attempt to check it in any very great degree, without introducing a "fresh class of evils. Nothing would be easier, in the first instance, than to do "all that is recommended in the memorials, to shut up public distilleries, to "close shops, to withhold licenses for production and vend, to pass prohi- "bitory regulations; but all this would utterly fail to stop, or even check, "manufacture. One main result would be that the manufacture, which is now "licensed and controlled, would continue, though illicit, and would be without "any really practical control. While, on the other hand, new evils, namely, "inquisitorial proceedings on the part of Government officials, and persistent "evasion on the part of the people, both circumstances directly conducing to "demoralisation, would be introduced.

* * * * * *

"Similar remarks may be made regarding the drugs opium and ganja. The "opium, though not universally produced, is yet grown over a very extensive "area. If there were to be anything like prohibition of the local consumption, "the temptation to illicit practices would be so great that they would spring "up to a degree beyond our power of prevention."

While sobriety still distinguishes the mass of the people, the vice of drinking is ascertained to be on the increase among some sections of the educated classes at Calcutta and at other large centres, especially among young men, and even youths. The Government is considering how its influence can be exerted to check the incipient mischief.

Opium and Excise. Bombay.

The Bombay Government have frequently intimated their aversion to any increase of the liquor revenue which is the result of increased consumption; but, aware as they are of the many illicit practices by which the revenue is now defrauded and the public are imposed upon, they have long seen the necessity of seeking a remedy, and are considering the advisability of legislating on the subject.

The opium revenue in Bombay exhibited a marked increase. The receipts from passes amounted to 2,952,703 *l.*, being nearly 212,000 *l.* in excess of those for the previous year, which then were the highest that had ever been reached except in 1862–3. From Malwa, where there were exceptionally large crops, there was an increase of nearly 5,000 chests. The quantity exported to China was 48,845 chests. The revenue was collected without default, and at a cost of less than $\frac{1}{4}$ per cent.

It is believed that smuggling prevails to a considerable extent.

Oude.

The receipts from the sale of excise opium in Oude showed a slight advance. It is believed that much smuggled opium is used, the plant being extensively cultivated near the places where there is a considerable demand for the drug.

There was also an increase in the excise revenue from spirits. The consumption of native liquor equalled about one-eighteenth of a gallon per head of the population.

Central Provinces.

In 1874–5, as in the previous year, there was a large increase in the revenue from opium in the Central Provinces, which was consequent on the extension of the system of supplying Government opium to retail contractors, cultivation being entirely prohibited. The advantage of this system is that it makes it possible to ascertain the exact consumption, and fix a higher rate of duty should consumption increase. Under the system which permits auction purchasers to supply themselves with opium, the price of the drug is but little controlled. The object of the contractors is to sell as large a quantity of opium as they can, and this object they attain by offering the drug at the lowest possible price, thus stimulating consumption.

The excise revenue of the Central Provinces is steadily increasing; in the year under review it made a large bound of about 14 per cent. This was partly owing to a change in the mode of taxation, and it does not indicate a corresponding increase of consumption. The Chief Commissioner remarks, however, that, as the year was a prosperous one, and as marriages were more than ordinarily numerous, it is probable that the people had more money wherein to purchase luxuries, and that more liquor was consumed.

He also states that the population of the province is generally more a spirit-drinking than a drug-consuming one.

With a view to check the consumption of ganja in the Central Provinces, cultivation of the hemp plant without a license has been prohibited, and the drug can only be sold by cultivators to licensed vendors.

British Burma.

The net revenue derived from excise opium in British Burma was 83,699 *l.*, against 73,536 *l.* in 1873–74. Of that sum, 54,338 *l.* was derived from the sale of Government opium, and 29,361 *l.* from licenses to vendors. There was also a considerable increase in the excise on spirits. Much of the yearly increase in this branch of the revenue is considered to be due to the growing prosperity of the people, but it is also in great measure consequent on the improved working of the department.

Salt. Bengal.

The salt revenue in Bengal, which had shown some falling off, fully recovered itself in 1874–5. The net revenue amounted to 2,671,768 *l.*, or if, in addition to charges of collection, refunds and drawbacks be deducted, to 2,643,766 *l.* Both the quantity of salt which paid duty and the amount of the revenue were larger than in any year since 1864–5. There was an increase both in the local manufacture and the importation, pointing to the material progress of the poorer classes. The extent to which the indigenous salt holds its position, notwithstanding the importation of foreign salt, is very satisfactory. But although there was a considerable increase in the quantity of excise salt manufactured and sold, the reduction in the duty led to a falling off in the revenue under this head; and the increase of revenue, therefore, occurred entirely in the receipts from duty on imported salt.

The importations are mostly derived from Great Britain and from Indian ports,

and importations from other countries show no tendency to increase, with the exception of those from Italy, which advanced by more than 10,000 maunds.* In round numbers it may be said that 59¼ lacs of maunds came from Great Britain, 11 from Indian ports, and 6⅔ from all other ports together. SALT.

Consequent on the abolition of the Customs line between Orissa and Madras (by Act X. of 1874), the selling price of salt in Ganjam was raised from *Rs.* 2 to *Rs.* 2. 4., and the duty in Orissa, which had previously been *Rs.* 3. 4., was fixed at a graduated scale, rising from *Rs.* 2. 4. on the Ganjam frontier to *Rs.* 3. 2. on the northern boundary of the Balasore district. The effect has been, not only to stimulate production in the northern parts of Orissa, but also largely to increase the importation of Ganjam salt into the southern districts of that province. The ultimate extinction of the Pooree manufacture is anticipated, for, in spite of the reductions in duty, the manufacturers of Orissa are still at a disadvantage in competing with those of Ganjam, the former being weighted with charges for preventive police and warehousing, from which the latter are free; while the labour employed in making salt is also cheaper in Madras than in Orissa. Some measures of relief to the Pooree salt were in contemplation.

In Orissa salt is used for exchange and barter, and forms a very important item in market transactions. The amount manufactured in Balasore in 1874–5 was 189,479 maunds. In Pooree salt is made by solar evaporation; it is coarser in grain and more pungent, but is preferred by those accustomed to consume it; 356,657 maunds of salt were manufactured in that district during the year. In the whole of Orissa 558,438 maunds of salt were manufactured, and 381,638 maunds were sold for consumption, yielding a revenue of 107,188 *l.* to Government.

The salt revenue in Bombay amounted to 899,053 *l.*, which exceeded that of 1873–4 by 169,439 *l.*, and the average of the five years ending with 1873–4 by 227,867 *l.* The increase of revenue is accompanied with enlarged consumption and better quality of salt. Bombay.

For many years past the system of exporting salt from Bombay to the other Presidencies without pre-payment of duty, in addition to the facilities it afforded for smuggling, had entailed a very serious sacrifice of Imperial revenue. After much consideration the withdrawal of the privilege was determined on, and from the 1st October 1874 pre-payment of full duty became compulsory.

The Bombay Salt Act of 1873 came into force on the 18th May 1874. Under it the manufacture of salt without license is prohibited; the owners of salt works are obliged to superintend, either in person or by duly-appointed agents, the removal of salt from their works, and are rendered responsible for all irregularities committed in the removal of salt; and salt officers are vested, with respect to offences against the Act, with powers similar to those exercised by the police in cognizable cases. The Act gives the Government power to frame rules for regulating the manufacture, storage, and removal of salt, and the import and export of salt by sea and land; to punish licensees, whose servants may be detected in fraud or breach of rule, by fine or withdrawal of their licenses; to regulate under licenses the storage of salt for purposes of sale at all places within ten miles of a salt-work or sea-port; and generally to control the operations of all persons transacting business at salt-works, whether as manufacturers or exporters.

Many of the salt owners of the Konkan, who are the persons chiefly affected by the Act, are men of influence, and it was only to be expected that the imposition of new responsibilities would be resisted. With the exception of two, the whole body of proprietors of the 256 works in the Northern Konkan declined to take out licenses, but after a time they all yielded and resumed manufacture. On the whole, the opposition met with was less than anticipated, and it has now been successfully overcome. It was the desire of Government that the Act should be worked with moderation. The Collector of Salt Revenue reports that this desire has been strictly acted up to by the department, and that those concerned begin to see that the Act does not harass manufacturers nor hamper legitimate trade, while it offers a decided check to malpractices which previously prevailed. Since the Act came into force no complaints have been

* A maund (which contains 40 seers) is equal to 82⅔ lbs. avoirdupois.

SALT.

made to Government on the score of its harshness or stringency, and it has not been found necessary in a single instance to put its penal clauses into action in order to enforce compliance with any of its new provisions. As regards the revenue, the measure has proved a decided success.

In the preceding year the Kharagora salt-works were finally opened. When the railway was completed to Ahmedabad, it was determined to close the works which supplied the country between Cambay and Bassein, five of which were on the Runn of Kutch and fourteen on the sea coast, and to open one large work on the Runn. It was anticipated that the result would be a large saving in establishments and a great diminution of smuggling. To enable this scheme to be carried out a branch railway had to be constructed from Viramgam to Kharagora.

More than a million of maunds of first-class salt were made and stored at Kharagora during 1874–5, although the season was an unfavourable one. The sales of this salt amounted to 610,092 maunds in 1873-4, and 668,815 in 1874–5. It is exported to Malwa and Central India and to the Central Provinces. The first branch of trade has been for some time diminishing, being unable to compete with Rajpootana salts, which pay no tax to the British Government. On the other hand, the exports to the Central Provinces are on the increase. The marginal table shows the progress for a series of years in the exports to the Central Provinces and Berar.

Years.	*Indian Maunds.*
1869-70	7,843
1870-71	26,584
1871-72	73,137
1872-73	140,439
1873-74	189,455
1874-75	269,789

Central Provinces.

Salt reaches the Central Provinces from three directions. That coming from Madras, in consequence of the Customs line from Burhanpur eastwards having been abolished, now bears a duty of only *Rs.* 2. 4. per maund, which is levied at the coast, instead of *Rs.* 3. (*i.e.*, *Rs.* 1. 14. at the coast and *Rs.* 1. 2. at the Customs line) as formerly; that from the Rajpootana salt lakes is taxed *Rs.* 3. per maund at the Customs line at Saugor and Hoshungabad; while that from Bombay is charged a mileage rate, which reaches to *Rs.* 2. 8. per maund at Nagpore, and *Rs.* 3. at Jubbulpore. The aim kept in view in these arrangements was so to modify the duties on the western salt as, on the one hand, to enable it to cope with the lighter taxed eastern salt, and, on the other, to restrain it from too forcibly interfering with the Rajpootana salt on which the full duty per maund was retained, and the mileage scheme seemed likely to meet the difficulty. The result has, however, somewhat disappointed expectations, for in the very first year the Bombay salt drove back the Rajpootana salt to almost half its dimensions. That portion of the former which passes up the Nerbudda Valley stops about 100 or 150 miles of Jubbulpore, so as to pay less than the maximum duty, and thence spreads itself over the field formerly occupied by the lake salt. To add to the complications, there were found, immediately the Customs line was removed, vast quantities of salt stored in depôts outside or south of the line which had only paid the coast duty, and which now flooded the markets, competing severely, and at a considerable advantage, with the legitimate trade from both the eastern and western coasts. The uncertainty as to the magnitude of these accumulations appears to have seriously affected the importations at Nagpore.

The Chief Commissioner observes that the year was, in respect to this matter, one of transition, and that the circumstances cannot be regarded as certainly indicative of the ultimate effects of the measure. But, he further remarks, whatever the fiscal effects may be, the measure cannot be regretted. The feeling was very strong against the Customs establishments throughout the country, and the situation in Sumbulpore particularly was anything but easy. The removal of the line under these circumstances was a political gain, and the local authorities bear witness to the popular gratitude in town and country at the freedom of intercourse with the coast now open to them, and at the reduction in the duty which enables them to obtain one of the necessaries of life at smaller cost and in their own way.

The Deputy Commissioner of Sumbulpore states that the facts prove "that "the salt line simply checked traffic along all the most important trade routes of "the country, and no measure could consequently have been better calculated "to advance the general prosperity of the people than its abolition."

A prolific inducement to crime has also been withdrawn, in the shape of smuggling, and of the conflicts with Government establishments consequent thereon. SALT.

In British Burma there was an increase of 1,458 *l.* in the receipts from imported salt, and a large decrease in excise on that locally manufactured. Taking the total realisations of the two years together, they were nearly balanced, 13,554 *l.* against 12,028 *l.* British Burma.

The allotments to the several Administrations on account of provincial services are shown below:— PROVINCIAL ASSIGNMENTS.

	£.
Madras	853,854
Bombay	982,727
Bengal	1,104,160
Punjab	542,044
North-West Provinces	648,984
Oude	218,266
Assam	175,512
Central Provinces	278,894
British Burma	307,000

The road cess is being extended throughout Bengal, excepting the hill tracts; its imposition is not felt to be burdensome by any of the classes who pay it. The zemindars are ceasing to object to it now that they see their rights will not be in any way encroached upon. BENGAL ROAD CESS.

The advantage of having a fixed income at the disposal of the local committee in every district for roads and communications is very great, and fresh life has been infused into district work all over the country. The registration which has to be made for the purposes of the assessments contributes much towards that knowledge which used to be so defective, and which is so essential to enable Government to devise benefits for the people at large.

Out of a total demand on this account in 1874-75 of 74,213 *l.*, the actual collections were 57,635 *l.*; demands to the extent of 8,918 *l.* were remitted. The cess will ultimately yield an income of at least 300,000 *l.* per annum.

The circulation of the Government paper currency has considerably increased in Bengal. The notes are largely used by the mercantile classes for purposes of remittance, and the proportion remaining in circulation increases, indicating the growing confidence of the people in the Government, and especially in its financial credit. CURRENCY. Government Paper in Bengal.

The Bombay Administration Report contains the following remarks on the depreciation of silver:— Depreciation of Silver.

"The year under report has been remarkable for the enormous and "unprecedented influx of silver, the imports exceeding those of the previous "year by upwards of a million sterling. The German Government, which has "since the war been converting its silver currency into a gold one, sent us "alone 47 lacs. That and the fear of further shipments had a marked effect "on the exchange. The value of Council bills kept down the cost of silver, "and, when they were nearly on a par, silver was often bought at once as a "means of remittance to avoid the risk of an extra demand, forcing up the "price of Council bills. The extra export of cotton was greatly the cause of "the extra import of silver and of gold. The cheapest medium of laying down "funds immediately available was generally made use of. The fact that an "unknown quantity of disposable silver was always hanging over the market "reduced the value of silver to a lower price than was ever before known. It "touched as low as 55⅝ per ounce. But, besides this, the production of silver "has of late years increased largely, while there has been a decrease in the production of gold. Hence gold has risen in price. Almost all the English "gold imported was sold before shipment, and yielded a known exchange. "Why gold was in such demand during the year under report is not clear, "unless it was owing to the depreciation of silver, and larger transactions in "cotton with the interior, where gold still continues to be hoarded."

IV.

LAND ADMINISTRATION.

Surveys. Bengal.

The professional village survey of Bengal was almost completed. It proves very valuable for the administrative changes and improvements which are being carried out in the interior of the districts; but it is considered by some competent authorities to be deficient in not having provided for the establishment of permanent boundary marks, and also in affording no details of cultivation and waste land.

There still remain to be effected some important survey operations. The continual changes caused by the great rivers of Bengal necessitate the periodical re-survey of the alluvial tracts in their basins.

The distribution of canal water among the irrigable lands in Orissa and in south-west Behar renders it very expedient to survey each field, or each subdivision of a field marked by permanent limits, so as to prevent all questions hereafter as to how much canal water has been taken and how much land irrigated by each husbandman; this work is now being carried on with minute precision by professional surveyors.

A detailed survey of the hill tracts of Darjeeling and British Bhootan is also required, in order to determine disputes as to the boundaries of tea-gardens and other settlements, of new cultivation, and of State forests.

Madras.

The Revenue Survey Department in Madras had been in active operation for 22 years, and was continuing to do efficient work. The system of survey in force in Government lands is described as follows:—

"The village boundaries are first settled, every turn of the line being permanently marked with stone; then disputes are disposed of, irregular boundaries are adjusted, very small villages are amalgamated, and very large villages are sub-divided. After these preliminaries the field boundaries are permanently marked with stone, and every holding is registered. Main circuits of from 50 to 100 square miles are carried out by the theodolite, the regular work being checked by azimuth observations at about every 50 stations; village boundaries are also surveyed by theodolite, and check lines within the village, forming minor circuits of from 100 to 200 acres. While the boundary work is being set up by traverse and plotted, the fields are being measured by chain in triangles, so that, when the measurement books are received in office, the map with traverse lines and offsets is ready to receive the fields; after correction of any errors that may be found to exist, the area of each field is taken by computing scale, and the sum of the area so obtained is compared with the traverse area. The village map is then sent out for insertion of topographical details."

Bombay.

The Topographical Survey in Bombay mapped 8,919 square miles during the year, making a total of 36,514 square miles. One party was employed in the wildest and most rugged part of the Satpura Range between Bhusawal and Khargun. Scarcely a habitation was met with over hundreds of square miles, although the sites of numerous villages still distinguishable prove that an attempt was once made to populate these hills by aborigines driven from the plains. Either the deadly climate, impure water, and the ravages of wild animals, compelled the abandonment of so inhospitable a shelter, and induced a movement towards Khandesh or Holkar's territory, or the unhappy settlers succumbed in the effort to prolong existence. The surveyors with difficulty secured the necessary supplies, and once or twice were savagely attacked by bears. In no part of the range was the compass found to work, which led to the inference that iron ore was present.

The establishments of the Revenue Survey Department surveyed 2,028,541 acres, and classed 1,500,146 acres.

Punjab.

Revenue surveys were in progress in three localities in the Punjab. During the year 6,262 square miles were surveyed.

The field maps framed and periodically corrected by village draftsmen, who are trained to the use of the plane table and supervised by the settlement establishments, though less finished and mathematically accurate than those of the Survey Department, are found to answer all practical require-

ments; and the Lieutenant Governor, on the ground of cost and for other reasons, deprecates a proposal which has been made for the introduction of a scientific village survey. SURVEYS.

The Revenue Survey of the Central Provinces has been completed. The total area surveyed amounts to upwards of 55,000 square miles. Central Provinces.

The Survey Department in the Hyderabad Assigned Districts classed 590,229 acres of land. The acreage of the whole of the villages in the province, numbering 6,665, has now been measured. The survey has brought to light an immense extent of what is called surreptitious cultivation; that is, cultivators were paying rent to the State for land supposed to be very much less in area than it was actually proved to be by measurement. Berar.

Survey work progressed rapidly in the Henzada district of British Burma; 13,167 holdings, with an area of 63,503 acres, were surveyed during the year. In the Rangoon district the survey and measurement of about 90,000 acres were effected. British Burma.

Dr. Hunter has recently submitted to the Government of India his Quinquennial Report on the Statistical Account of India. During the 10 years subsequent to the transfer of the direct Government of India to the Crown the attention of the Government had been frequently directed to the absence of any trustworthy statistical account of that country. In 1869 Dr. Hunter was instructed to visit the various Local Administrations to ascertain what had been done in the past in this respect, and in 1871 he was appointed Director General of Statistics, with a view to the organization of a statistical survey, the compilation of the results in the provincial statistical accounts, and the subsequent condensation of these provincial accounts into the Imperial Gazetteer of India. Statistical Survey of India.

Dr. Hunter reports that, as regards British India, the successful completion of the work may now be said to be secured, while in Native and Feudatory territories the operations are still in a very backward state. He expects the Imperial Gazetteer to be commenced on the 1st February 1877.

The land revenue demand in Bengal realisable within the year (including arrears) was 3,921,450 *l.*, of which 92·36 per cent. was collected. The steady growth of the land revenue indicates a very satisfactory development of the agricultural wealth of the country. LAND REVENUE. Bengal.

The collections of land revenue in Madras amounted to 4,632,063 *l.*, being an increase of 185,369 *l.* as compared with the preceding year. This increase is ascribed to the more punctual realisation of current revenue and the recovery of a large amount of arrears in some districts, and to extension of cultivation in others. Madras.

In land revenue collections in Bombay there was a falling off in the Northern Division, due to less acreage under grain crops, but this was more than compensated for by an increase in the Southern Division consequent on revision of rates. In Sind also there was a falling off, owing to floods in the early part of the year. The total revenue for collection in 1874–5 was 2,887,858 *l.*, and the total realisations up to 31st July 1875 (the end of the revenue year) were 2,865,224 *l.* Bombay.

The revenue was collected without difficulty, and the pressure which it was necessary to exercise was considerably lessened by regulations which were introduced for inflicting a fine, and forfeiting the privilege of payment by instalments, in cases of default.

The result of the Revenue Survey operations was an increased assessment to the extent of 18,263 *l.* The increases were carefully considered, and are believed to be moderate. Remissions were also made, chiefly in the Poona and Sholapore Collectorates, in consequence of the fall of prices having occasioned to the cultivators a difficulty in meeting the claims upon them.

While recognising the necessity of continued caution and moderation in the revision of assessments, the Bombay Government entirely dissent from the views of those who would advocate a permanent settlement. On the one hand, it is considered that the Government must never pass from its position as a share-

LAND REVENUE. holder to that of a landlord; but, on the other hand, the conditions of the increasing value of the land are too uncertain to admit of the Government binding itself down to a fixed share for a large number of years.

That the settlements are of the greatest advantage to the land itself is shown by the following description of a taluka in the Deccan :—

"The original survey settlement was introduced in 1839 and 1840. At that "time the condition of the taluka was represented as most deplorable. 'I am "'at a loss,' says Lieutenant Nash, the Settlement Officer, writing in 1838, 'to "'convey the idea of poverty and ruin which I have received during my resi-"'dence here.' Several causes,—the ravages of Holkar's army in the beginning "of the century, the dreadful famine which followed that campaign, and was "repeated two or three times in the next 20 years, the violent epidemic of cholera "which raged about 1820, the heavy fall of prices after the introduction of "British rule, and the consequent oppressive weight of the old Mahratta rates of "assessment,—were assigned by the settlement officers as having all contributed "to produce this lamentable result. More than half the arable land of the "taluka was waste, and much of it covered with thick thorny jungle difficult to "eradicate. The average rate of Government assessment was about 13½ annas an "acre, in addition to 'haks' and illicit exactions to a considerable amount; but "so utterly pauperised were the people that the realisations of revenue averaged "hardly half of the nominal assessment. In the 10 years immediately pre-"ceding the settlement, the actual annual collections averaged only *Rs.* 26,661; "not less than *Rs.* 13,567 were annually remitted, and, in addition, nearly a lac "of rupees were outstanding, and were finally written off, on the introduction of "the settlement.

"The effect of the settlement (which gave an average rate of seven annas per "acre, and relieved the people of direct 'haks'), both financially and on the "condition of the people, was most satisfactory. Nearly half the waste land "was taken up in the first year, and the actual annual collections for the first "decade of the term averaged *Rs.* 43,407, for the second decade *Rs.* 57,850, "and for the last decade *Rs.* 72,588, against *Rs.* 26,661 for the decade imme-"diately preceding the settlement. The assessment of cultivated lands in the "last year being *Rs.* 81,475, the effect of the settlement has been to more than "treble the Government revenue.

"The condition of the people improved equally with the Government revenue. "In 1838, more than 50 per cent. of arable land was waste; in 1871, only "1 per cent. Population increased during the term of the settlement 39½ per "cent., agricultural cattle 19 per cent., ploughs 22½ per cent., carts 270 per "cent., and wells 40 per cent. Government land was unsaleable in 1838; "during the last five years of the settlement, examination of the registration "records showed that it fetched from 10 to 52 times its assessment. Thirty "years ago there were no made roads, and communication was costly and "difficult; the taluka is now traversed by the railway and by several excellent "roads, and the increase in the number of carts indicates the extent to which "the people avail themselves of the new facilities of communication with "markets."

Similarly it is reported that during the 30 years of the first settlement of a portion of the Kaladgi Collectorate the better class of houses increased 85 per cent., cattle 45, carts 1,360, ploughs 220, and wells 106 per cent. And in Dharwar, houses of the better sort increased 74 per cent., cattle 9·8, carts 494, and wells 42 per cent.

As a proof that the present rates are as moderate as is consistent with Imperial interests, it is stated that the value of land in the Poona and Sholapore Collectorates is computed at from 8 to 12 years' purchase of the revised assessment as originally introduced.

Punjab. Settlement operations were in progress in 14 districts of the Punjab. They were completed in Dehra Ghazee Khan and Hazara, in the first for 20 and in the latter for 30 years.

The collections of land revenue for 1874-5 amounted to 1,897,585 *l.*, being 15,527 *l.* more than those for 1873-4. The assessments in all the districts were extremely moderate, and in border villages nominal; they were readily accepted by the people, and collected with the greatest ease. A still more important advantage than the fiscal one is the security of tenure conferred by the pre-

paration of a record of rights. In each of the districts where operations have been concluded there has been a great increase of cultivation and a rise in the value of land. LAND REVENUE.

The collections of land revenue in the North-West Provinces (besides outstanding balances, 8,323 *l.*) amounted to 4,165,494 *l.*, against 4,130,102 *l.* in the previous year. North-West Provinces.

The result of the revision of assessments in 1874-5 was an increase of 30,307 *l.* to an expiring demand of 298,231 *l.*

In the revision of settlements great stress has been laid on the accurate preparation of village records, from which will result correctness and economy in future settlements, and confidence and method in dealing with drought or famine, while the present advantage to a large class of the community is obvious. The possession of trustworthy agricultural statistics may also, Sir J. Strachey observes, reveal the possibility of establishing agricultural banks and freeing the small landowner or cultivator from the hereditary money-lender.

The land revenue demand in Oude was 1,435,278 *l.*, of which 1,260,625 *l.* was collected, and 98,719 *l.* was remitted in consequence of the effects of a series of bad seasons. Oude.

The revision of the settlement of the land revenue in Ajmere was brought to a conclusion during the year under review. The gross demand fixed was 19 per cent. less than the previous settlement, which had unduly pressed on the people and impoverished them since 1857. Ajmere.

The amount of land revenue collected in the Central Provinces was 591,480 *l.* Inquiries were brought to a close during the year into the alleged undue pressure of the Government demand in two tracts. In one case, the impoverished villages were found to be held by thriftless Brahmans and Mussulmans, who expect to realise gains without labour, while certain large villages, which had been put down as heavily assessed, were found to be in good condition, and in no need of a revision. In the other case, the cause of suffering was not the land revenue demand, but the famine of 1869, when many persons were carried off by disease, and a murrain fell upon the cattle. Considerable advance had been made in recovering from the effects of that and subsequent bad seasons. Central Provinces.

The land revenue demand in Berar rose from 596,599 *l.* to 606,450 *l.* The increase of revenue is due to the operations of the Survey Settlement, which resulted in the settlement during the year of 455 villages, comprising an area of 454,824 acres, and a consequent increase in the assessment, amounting to rather more than 10,000 *l.* Berar.

The demand in British Burma was 440,704 *l.*, exceeding by 11·1 per cent. the assessment in 1873-4. This was in consequence of the exceptionally large area brought under cultivation in anticipation of a repetition of the profits of the famine year. British Burma.

The result of the Henzada survey work was an addition to the revenue from that district of 1,994 *l.* per annum. Cultivation is so rapidly extending in Henzada that it has been deemed expedient to defer any settlement of the land, even for a short period.

There is stated to be a general concurrence of opinion as to the marked improvement within the last few years in the condition of the ryots of Bengal proper, both in respect of their material comfort and of their rights and status. In some localities their social progress is said to be quite remarkable. RELATIONS BETWEEN LANDLORD AND TENANT. Bengal.

The rent laws of 1859 and 1869 raised up a class of middlemen with an occupancy status, that is, of men who, having held for 12 years or more, would not be liable to ejectment while they paid their rent, nor to enhancement of rent save by decree of a court of justice.

It is believed that the great majority of cultivators have now acquired the occupancy status, and that mere tenants-at-will are comparatively few. In Berar and Orissa also occupancy rights are gradually growing up.

The relations between landlord and tenant have, however, not improved, continual disputes arising as to enhancement of rent. The rent laws, while doing so much for the status of the cultivators, did something also for the land-

RELATIONS BETWEEN LANDLORD AND TENANT.

lord, inasmuch as they asserted the principle that even from occupancy ryots he should be entitled to increase of rent under certain conditions. Of these conditions, the most important was this, that the value of the produce, or the productive powers of the land, must have been increased otherwise than by the agency or at the expense of the ryot. The growth of the export trade in agricultural produce has greatly augmented the profits of cultivation to the cultivator. The zemindar considers himself entitled to a share in this improved income, and he founds his demand on the condition above cited. The ryot hesitates to comply altogether; he will pay something additional, but he will not accept the arbitrament of the zemindar, and he is disposed to join issue at law. He will withhold payment of rent altogether if he cannot come to terms with the landlord.

Combinations are often formed on both sides, especially by the ryots, who subscribe to a general fund for law expenses. Whenever it is found that the ryots are only opposing attempts at rack-renting or other oppression, they have the sympathy of Government officers, so long as they keep themselves within the limit of the law, but sometimes they are in the wrong.

The issue of the Pubna disturbances has been that both sides claim the victory, but it is believed in the main to have been favourable to to the ryots. Similar disputes which arose in Dacca early in 1875 were referred arbitration, and the decision appeared to be rather in favour of the zemindars.

At the same time influences of a higher kind are at work among the zemindars. They recognise the justice of allowing to the cultivator a good share in the increased produce of his toil, and the expediency of maintaining with their tenantry those friendly relations which ought to spring from community of interest in the soil. Though far from doing all that they ought, still they evince a growing disposition to help their tenantry in time of need.

They displayed much kindly feeling in connection with the famine; and in Sir R. Temple's last Report it is stated that in all parts of the province signal instances of active and comprehensive benevolence and of munificent liberality for all sorts of useful objects on the part of zemindars frequently occur, which would be deemed honourable to the landlord class in any country.

The agrarian troubles are partly attributed to the process of "sub-infeudation," which has greatly developed itself in many districts. In most of such cases the zemindar becomes a merely nominal landlord, with a very limited income, and the temporary leaseholder, having no abiding interest in the land, may be tempted to resort to extortion.

From various causes, the subdivision of ownership throughout the country is much increasing. Such partition of the proprietary title in land is held by some to tend to the creation of a helpless class, who have neither enough capital for good husbandry, nor the habits of manual industry which belong to peasant proprietors. It appears, however, that in Bengal such petty landlords betake themselves to other professions, and this intellectual activity and spirit of self-help which pervades the landowning community is considered by Sir R. Temple as a circumstance full of hope for the future of Bengal.

Illegal cesses in Orissa.

As to the cesses imposed by zemindars in Orissa, it has been ascertained that some have undoubtedly been very generally levied which were unauthorised by law, and that in some cases they have been exacted in an oppressive manner. The Lieutenant Governor, however, stated last year that, from recent reports of the local authorities, and from what he himself observed during a visit to the province, it appears certain that the ignorance and timidity which formerly characterised the people are steadily, though it may be slowly, giving place to a spirit of intelligence and independence, and that there has been latterly a marked absence of complaints of oppression on the part of zemindars towards their tenantry.

While those cases which were oppressive are believed to have been stopped, others remain which have the sanction of long prescription, and which, though not recoverable by law, virtually form a part of the rent. Such cesses the ryots themselves prefer to the payment of a similar amount as regular rent, while the zemindars appear anxious that some more precise rules than those at present in force should be laid down as to the rents which they may demand. A voluntary composition of the cesses would apparently be a desirable arrangement, and would strengthen the relations between landlord and tenant. The whole of this difficult question is under the special consideration of the Lieutenant Governor.

On a review of the working of the Punjab Tenancy Act, the Lieutenant Governor shows that the measure has not, as had been apprehended, resulted in any wide-spread contention between landlord and tenant, and the excitement which attended the discussion of its provisions is said to have completely subsided. In 1874-5 only one landlord in 1,180, and only one tenant in 1,160, were sued, and the number of suits instituted is decreasing.

RELATIONS BETWEEN LANDLORD AND TENANT. Punjab Tenancy Act.

The question of the tenure created by the settlements of the Chanda and Nimar districts in the Central Provinces has been before the Government of India since 1871. By those settlements the malguzars were made proprietors of their villages, the older ryots were made occupancy tenants, and the other ryots were left unprivileged. The position of the ryots was believed to have been injuriously affected by the change. After much discussion, the Government of India have laid down the principle on which they desire to see the settlements carried out. The position of a malguzar must, they say, be so defined as not to trench on the rights of other classes, who by custom have claims which at first were not sufficiently understood. It must be an established principle that the tenure of all cultivators is a fixed and permanent one so long as the revenue or rent is paid, and that the payments, as a general rule, are not to be liable to enhancement, except at the time of settlement.

Central Provinces.

The effect of the Government decision generally may be said to be that it places the various classes of persons who derive their subsistence directly from the soil on as nearly as possible the same footing as they were before the settlement proceedings were undertaken, without, however, withdrawing the gift of proprietary right which had been made.

The work of the Madras Inam Commission is gradually drawing to a close, and only a few cases remain to be dealt with by the Board of Revenue. It is considered that the proceedings of the Commission have been very successful. Landed property, in which not less than 2½ million persons are in some measure interested, and extending to nearly 5½ millions of acres in area, which had heretofore been held on defective and doubtful titles, and which paid to the revenue less than one-tenth of the regulated land assessment, has now been confirmed to the holders on indefeasible Government titles, and the measure has resulted in a clear gain to the revenue of about 80,000 *l.* per annum. The alienation of State revenue has been considerably reduced, and, at the same time, contentment has been diffused throughout the whole body of the Inamdars, a class which numbers probably upwards of a million individuals in the Presidency.

INAM TENURES IN MADRAS.

Inquiries in Bengal as to the indebtedness of the cultivating class show that it is not so serious there as it once was, although it still exists very largely. The amount of debt is for the most part not excessively burdensome. The ordinary rates of interest are believed to be as high as 37½ per cent. per annum, and on rice advances 50 per cent. The creditors are generally the village bankers, but often the zemindars. The loans are contracted partly for the purchase of cattle and implements of husbandry, to some extent for law expenses, and largely for marriages.

INDEBTEDNESS OF THE CULTIVATING CLASS. Bengal.

In Madras, the increase of coercive processes for the recovery of land revenue has attracted the attention of the Government, as it appeared to indicate that the agricultural class was becoming impoverished. In many individual cases, men who have not sufficient capital take up waste land when seasons and prices are auspicious, and then are driven to ruin by a fall in prices, or an unfavourable season. This ambition to rise in the social scale, though it injures the few, is, however, regarded as beneficial to the community at large, as the land-holding class thus gains to its ranks the thrifty, enterprising, and industrious.

Madras.

But besides this and other minor causes, the principal one appears to be the substitution of law for arbitrary usage in the collection of the revenue. The actual statistics do not seem to furnish any matter for alarm, for 95 per cent. of the revenue is collected with ease and regularity, and 4 per cent. more with only the trouble of formally demanding it. Many ryots do not pay up till the last moment. The rate of interest charged by Government is much below the market rate, and the ryots know to a day when the law can be put in force, while the mere attachment of property carries with it no humiliation to them.

INDEBTEDNESS OF THE CULTIVATING CLASS. Bombay.

The causes assigned for the indebted state of the ryots in Bombay were referred to in last year's "Statement" (p. 5). The Administration Report for 1874-5 enters into an argument to prove that low prices are not the direct cause of the indebtedness referred to. As far as agricultural distress is concerned, the present is, in fact, a period of recovery. Taking Khandesh as an example, it is pointed out that 1871-2 was a year of marked scarcity, and that the floods of September 1872 caused much temporary misery. Money was consequently required, and was largely borrowed. The money thus lent to meet temporary necessity has now been to a great extent recovered; and it would be incorrect to describe a period of general recovery from a condition of over-active lending and borrowing as a time of national impoverishment; although it is true that the ryots parted with most of their savings, and even with their ornaments, to satisfy their creditors, rather than lose their ancestral holdings. But so far as low prices, by diminishing agricultural profits, induce money-lenders to withdraw capital lent, the present period, otherwise prosperous, may be regarded as a period of depression. The "Limitation Act," reducing the time for the recovery on money bonds from 12 to 3 years, came into force in the Deccan at a most unfortunate crisis, when there was a great deal of floating debt, securities were rapidly falling in value, and demand for commodities was gradually subsiding. The result was that the money-lenders found it for their interest to recall advances, while the borrowers found a difficulty both in obtaining silver and in disposing of their grain. In the present state of the law, the courts are successfully used by money-lenders for purposes of extortion, and they find this the most easy and profitable way of collecting their debts. Nearly all plaintiffs are money-lenders. During 1873, no less than 57 per cent. of cases disposed of were decreed *ex parte*, only 15 per cent. were contested, and of the latter only 17 per cent. were decided in favour of the defendant; and the proportions only very slightly improved in 1874. The number of cases in which immovable property is attached and sold is very large, and imprisonment is freely resorted to. In the Deccan the ryots combined and rose against the oppression, and openly destroyed bonds which, though good in the eye of the law, were grossly extortionate. The whole question of the action of the courts is now being thoroughly inquired into. The fault is in the state of the law, not in the judges, who, as a body, are distinguished for their industry and intelligence. The courts must act in accordance with the law and rules in force; but it is the almost unanimous opinion of district officers that the manner in which the rapacity of the money-lenders is aided by the civil courts is an evil which Government ought to attempt to remedy, though the question is one beset with difficulties. On the one hand, there is the danger of interfering with free trade in money; but, on the other, there is the necessity, when the contest is between a shrewd class and an ignorant one, of taking some measures for the protection of the latter. Whether the Government can permanently preserve the independence of the peasantry, can protect land against capital, is a disputed question, but one occupying constant and earnest attention.

While to permit frequent transfers of land for debt is generally held in India to be impolitic, the Bombay Government are not oblivious of another aspect of the question. The rise of a class of monied landlords is not to be regretted, provided they attain their position by fair purchase, and not by abuse of the law. Such owners will be more capable of undertaking a superior style of farming, and will eventually, it is to be hoped, be able to experiment in agriculture.

Punjab.

The favourable view taken in the previous year by the Punjab Government of the transfers of land in that province is confirmed in the year under review. The Lieutenant Governor expressed his conviction on the former occasion that the transfers which are taking place do not exceed, or indeed nearly equal, the number which may safely accompany the development of wealth in a country which is in backward circumstances. The Financial Commissioner of the province was of opinion that a natural and healthy process was going onwhich should on no account be interfered with. Further specialy inquiries have been made into the matter, from which it appears that during 1874-5 there were 5,952 cases of sale, of which all but 341 were voluntary; in other words, that only one proprietor out of 540 parted with his land. The

aggregate area of land sold was 79,750 acres, being 13,895 acres less than that sold in 1873-4; the amount was in the proportion of about four-fifths of an acre per square mile of assessed area, and about 2½ acres per square mile of land actually cultivated. INDEBTEDNESS OF THE CULTIVATING CLASS.

Moreover, the bulk of the land sold passed into the hands, not of money-lenders, but of agriculturists, at an average price of 27 years' purchase of the Government land revenue. The total area under mortgage at the close of the year did not exceed 13 acres per square mile of assessed area. In the Mooltan Division, where the greatest proportion of cultivated land is in mortgage, 85 per cent. of the cultivated area was unencumbered.

Another advantage as regards this province is that the impolicy of permitting too rapid or wholesale dispossession from hereditary lands has from the first been recognised by the Administration, and special restrictions exist which are not common to other parts of India. The Lieutenant Governor is of opinion that to increase those restrictions, while it would fail to teach prudence to the improvident, would operate to depreciate the value of land as a security, and to raise still higher the rate of interest, while it would also tend to destroy the habit of self-reliance and industry which characterises many of the cultivating races of the Punjab, and which is one great cause of its agricultural prosperity.

In a "Report on Current Rates of Interest on Loan Transactions in the Punjab," the Financial Commissioner makes the following remarks:—

"The rate of interest charged to agriculturists is generally higher than that "charged to other borrowers. It is stated in some of the reports, and it is "no doubt generally true, that the rate of interest varies according to the social "position and respectability of the borrower and the nature of the security "offered. This general assertion does not, however, apply to cases where the "security of land is taken. The returns of transfer of lands submitted with "the Annual Revenue Report show that the value of land is steadily increasing, "and it is a matter of notoriety that there is a general desire among all classes of "the people to acquire land. Notwithstanding this the interest charged upon "loans granted on the security of land does not decrease with the increasing "value of the security.

"The Deputy Commissioners of Lahore, Mooltan, and Rawulpindee ascribe "the high rate of interest charged on loans made on the security of land to the "difficulty of obtaining possession of the land if the loan is not repaid. This is "no doubt one reason, and another may be found in the general poverty and "improvidence of agriculturists. To these reasons must be added the absence "of competition among village money-lenders. The Financial Commissioner "believes that an agriculturist who has dealings with a village money-lender "(and this is universally the case) cannot open an account with another money-"lender, and transfer his dealings to him, however much he may desire to do "so. It would be contrary to the custom of the money-lenders to compete in "this way for clients, and to do so would cause bitter animosity.

"If another class of money-lenders could be induced to enter into business of "this kind, the Financial Commissioner believes that the rate of interest to "agricultural borrowers might be lessened, while at the same time the lenders "might obtain very good interest on the money lent."

In the Central Provinces there was a decrease in the number of compulsory registrations, as compared with the previous year, from 8,044 to 7,663. This points to the satisfactory circumstance that indebtedness among the agricultural classes was not spreading. From most districts it is reported that, owing to two successive good harvests and to a large export of produce, agriculturists have been less pressed for money, and have not been forced to raise money on bonds in which they mortgaged their holdings as security for the loan. Central Provinces.

In the Hyderabad Assigned Districts land paying revenue to Government was brought under attachment in execution of decrees in 1,042 cases. Of these, in 261 cases alienation was effected; in 166, sale of land was recommended; in 72, land was actually sold. Berar.

The Resident thinks that the number of cases in which actual sale followed attachment is not such as to inspire anxiety, especially as possession of land in

INDEBTEDNESS OF THE CULTIVATING CLASS.

Berar "partakes more of a mercantile speculation than of a sentimental "attachment to the soil."

It is also noticed that in this province the money-lenders, owing to difficulties in the execution of decrees, are becoming more cautious in granting loans, a fact which is not to be regretted, considering how much borrowed money is wasted in marriage and other ceremonies.

GOVERNMENT AND WARDS' ESTATES.

Bengal.

The Government estates in Bengal, which from various causes are constantly being added to, amounted in 1874-5 to 8,164 square miles, representing a rental of about 186,000 *l.* In these estates the Government endeavours to illustrate the principles which it impresses on other landowners. Tenant rights of all degrees are recorded and respected, and $3\frac{1}{8}$ per cent. of the rental is set aside for current improvements.

So also in the case of Wards' estates. The ward, on taking possession, generally finds that the income has been augmented, and often that debts and encumbrances have been cleared off. The amount of land under this management was nearly 3,300 square miles, with a rental of nearly three-quarters of a million sterling. The care of Government extends to the wards themselves, for whom a good education is provided at Calcutta.

Madras.

In Madras there were 29 Wards' estates under management. With a few exceptions the behaviour of the minors was good, and their educational progress fair.

Bombay.

There are no Government estates in Bombay. The Wards' estates numbered 56, none of them of any great value. Most of the minors are receiving a suitable education; their estates are being released from encumbrances, and a balance is usually accumulated which is paid over on the heirs coming of age.

Punjab.

The estates in the Punjab of which the proprietary right is vested in the Government amount in area to 15,763 square miles, and yield a revenue of 67,542 *l.* There are also private estates in which the Government collects its revenues direct from the cultivators. The number of estates under the Court of Wards was reduced from 34 in 1873 to 31 in 1874.

North-West Provinces.

There is a large number of estates in the North-West Provinces held by Government as confiscated properties, or escheats. About 120 villages, or portions of villages, have come into this category, chiefly through the rebellion of the proprietors in 1857, but in some cases by order of the criminal courts. The number of the former is constantly diminishing, as they are sold or given as rewards whenever a fitting opportunity occurs, and in the course of the year as many as 30, with an income of nearly 1,900 *l.*, passed out of the hands of the Government, but it will probably be very long ere the whole of them are disposed of.

Besides the above, other estates come temporarily under Government management, on account of arrears of revenue, and in other cases it devolves on the Government to assume the duties of landlord in the absence of any person with a sufficiently clear proprietary title.

Sixty-seven estates, yielding a gross income of 179,545 *l.*, were managed by the Court of Wards during the year. Of these estates, 44 were encumbered with debts, amounting in the aggregate to 385,481 *l.*, when they were first placed under its charge. By the close of the year 1873-4, debts amounting to 187,712 *l.*, besides interest, had been paid off, and 13 had been entirely freed from their encumbrances. The expenditure during 1874-5 on improvements amounted to 6,831 *l.*, and that on wells, tanks, embankments, and other works of irrigation was 5,485 *l.* All the minors who are old enough are being educated.

The practice of farming villages to resident cultivators in preference to strangers, which was at one time confined to the Benares and Allahabad Divisions, has been extended to other parts with marked success, and with no less advantage to the estates than to the peasantry, for while the latter are protected, the former escape the deterioration that must result from the depression of a rack-rented tenantry.

GOVERNMENT AND WARDS' ESTATES. Oude.

In Oude, there were in all 78 estates under direct management, with a gross rental of nearly 400,000 *l.* Most of these estates came under Government supervision owing to the proprietors, after years of extravagance and mismanagement, finding themselves hopelessly involved; and it has been a work of great difficulty to introduce anything like order into them. At the close of the year the prospects of the greater number of them were promising. Advantage has been taken of the legal right of the Government in some villages to create an occupancy right in favour of some of the resident cultivators, who are secured in their holdings subject to the payment of rent, which is fixed for the period of settlement.

V.

AGRICULTURE.

SEASONS AND CROPS. Bengal.

The rainfall of 1874 in Bengal was moderate, but was happily distributed, and the out-turn of the crops was, generally speaking, above the average.

The rubbee, which was being reaped when the year 1874–5 opened, was a deficient crop over all the northern districts, but after this the seasons were propitious. The rains set in early in June, and were eagerly taken advantage of, people leaving the relief works in thousands to prepare the ground for the rice crop. The rains continued to fall freely up to the middle of July, and by that time a good autumn crop was secured.

But the winter rice, the main staple of North and East Tirhoot, was far from being safe. August is the month during which this rice is transplanted, and without heavy rain transplanting is impossible. The rains, which had begun so propitiously, ceased suddenly about the middle of July, and from then right through August and up to the beginning of September no rain fell in Tirhoot, and very little in Sarun and South Chumparun. Towards the end of August the prospect seemed very gloomy. The seedlings were beginning to wither in the nurseries, and in another week or ten days transplantation would have been impossible. Happily the rain came in time, and only just in time, to save the crops. A heavy and universal downpour in September made everything safe, and it became obvious that the famine was over; and accordingly, in October, orders were issued for the breaking up of famine establishments and closing all relief operations.

There are in Behar and Northern Bengal very large areas of culturable waste land which would be available for the surplus population of parts of the former province. Statistics have been called for to show the proportion of cultivated to waste land, and whether the population, allowing for a normal rate of increase, can be supported for some time to come by bringing waste lands under cultivation.

Madras.

The season in most parts of the Madras Presidency was decidedly favourable, although the rains were not as evenly distributed as usual. Some damage resulted from the occurrence of heavy floods.

Bombay.

In Bombay the rainfall of 1874 was unusually heavy, but the season was, upon the whole, favourable, and in many parts crops were above the average. The area under cultivation in the Presidency proper showed a tendency to contract, while in Sind it was very largely extended. The ground which has been abandoned is comparatively unproductive, and it is believed that the cheap prices at which the commoner grains sell do not leave a sufficient surplus to the cultivators. High prices, in former years, stimulated the desire to secure large crops, without sufficient attention being paid to the manuring of the land.

Punjab.

There was a splendid spring harvest in the Punjab, following on the seasonable rains of 1873, but in the autumn harvests there was, in most parts of the province, a considerable falling off, the rainfall of 1874 having been generally very scanty.

The area annually brought under cultivation during the last few years is shown in the following table:—

	Acres.
1871–72 - - - - - -	17,928,140
1872–73 - - - - - -	19,771,986
1873–74 - - - - - -	19,724,540
1874–75 - - - - - -	19,968,976

There was an universal fall of prices, partly resulting perhaps from increased cultivation, but chiefly from the cessation of demands from Bengal for food grains.

North-West Provinces.

In the North-West Provinces the rainfall was nearly three inches less than that of any year since 1868-9. The year began with fears of serious scarcity,

which happily were not realised. In the Benares and Allahabad Divisions cotton and indigo suffered from the ill-timed distribution of the rain, and the autumn sowings of 1873 were below the average; but in the central and upper districts the spring harvests were unusually good, in the former owing in great measure to irrigation from the Ganges Canal, in the latter to seasonable rains. SEASONS AND CROPS.

The northern parts of Oude suffered from the unseasonable rains of the former year, and remissions of revenue and relief works were found necessary. The distress was to some extent counterbalanced by the brisk demand from Bengal for food grains, and the consequent high prices. The rains of 1874-5 were much more propitious; they commenced early, were abundant, and were equally distributed throughout the season. Oude.

The Central Provinces being a purely agricultural country, their prosperity, each year, depends on the monsoon. This, in 1874, set in early in June, after three months of exceptionally hot weather. Rain continued to fall in abundance through July and August, and in a less degree in the two following months. The fall for the whole province exceeded the average, but it was unequally distributed. In most of the rice-growing districts a good harvest was secured; in Chanda there was promise of a good crop, but it was damaged by an insect. Jowari and cotton generally suffered from excess of moisture, but oil-seeds and other spring crops turned out well. On the whole, the year was one of plenty, and prices were lower than for several years past. Central Provinces.

The cereals occupy 86 per cent. of the total area; and of that portion rice appropriates 31, wheat 26, and all other food grains 43 per cent. Wheat is grown universally, but mainly in Hoshungabad, where it is of the very highest quality, and in Saugor and Jubbulpore. Oil-seeds are the next principal crop, and are produced more or less in all districts of the province.

The decision to construct a railway from Chutteesgurh to Nagpore, the necesity for which had been strongly urged by the Chief Commissioner in the previous year, was not taken till after the close of the year under report. Chutteesgurh is the granary of that part of Central India, but there is at present no outlet for its resources except by cart and pack bullock carriage. In the present circumstances agricultural development in this district is said to be next to impossible; and the comparative difficulty of access to its wealth of surplus food prevents any larger area in the valley of the Wurda being put under cotton, for which it is eminently fitted, and for which a demand would spring up which would make its production highly remunerative. What it has been possible to do in improving the road communication has been done by the Local Administration, as will appear in the section on PUBLIC WORKS (p. 46.)

Much attention has been paid to horticulture in the Central Provinces. The attempts to acclimatize foreign plants have resulted in partial success. Rhea grass is found to be suited to this part of the country. During the year the first flower-show took place in the Horticultural Society's Garden. The prizes awarded were liberal enough to tempt a large competition, but the ignorance of the object aimed at in such shows was marked by the total absence of exhibitors on the part of the Native public, and competition was therefore chiefly confined to the European community. There were several very good specimens of flower and vegetable growths exhibited. The show was to be repeated in the following year.

The crops in Berar were, on the whole, very fair. In the Buldana district, where the rainfall was partial, the rice crops were a failure, and in 78 villages there was almost a total loss of crops. Berar.

The area under cultivation in this province increased during the year by 187,743 acres. In Akola 95·5 per cent. of the culturable area is now under the plough. Of the total cultivation, dry crops cover 98·5 per cent.

The two chief products are jowari and cotton. The cultivation of tobacco and of opium was on the increase, though still of small dimensions.

The rainfall in Coorg was an unusually heavy one, and caused some damage to the "ragi" crops in the north of the province, and to the coffee crops; the paddy crop, however, was a good one, and the rise in the price of rice, as well as the abundant rain, led to a large extension of this cultivation. Coorg.

SEASONS AND CROPS. British Burma.

In British Burma, the rainfall, though below the average of the previous five years, was evenly distributed throughout the monsoon months, and the harvest was a very good one.

The area brought under cultivation during the year showed an increase of 10·77 per cent. In the area under rice the increase was 240,005 acres, or 11·64 per cent. The abnormal demands of the previous year from Bengal both stimulated cultivation and raised prices, and much difficulty was found in the year under review in bringing the latter down again to their proper level. In the cultivation of tobacco, sugar-cane, and cotton there was a decrease.

The crops in the Karen country had since 1870 suffered annually from the ravages of rats. In the commencement of 1874 it was found that the scarcity had become serious, and relief in money and paddy was distributed. Every inducement was held out to the people to proceed to Tonghoo for employment, but with little success, until they were compelled to yield to necessity. The rats had not returned during the last season, and it is estimated that, with immunity from further ravages, 10,000 *l.* will cover the total expenditure. No deaths from actual starvation were reported, although the mortality was excessive, owing to innutritious diet before the migration to Tonghoo.

MODEL FARMS. Bengal.

The experimental farms established in Bengal during recent years have not answered their expectations, and it has not been found possible to maintain them. The real need in this direction is believed by Sir R. Temple to be the gradual education of the rising generation in all that relates to scientific agriculture, agricultural chemistry, &c., and with this object it is in contemplation to found an agricultural college in Behar.

Madras.

The model and experimental farms at Sydapet are the only Government institutions in the Madras Presidency for the development of agriculture. At the latter, various experiments were made during the year in the breeding of live stock, and with much promise of success. The working of the model farm was financially a failure.

It was in contemplation to inaugurate a school of agriculture at Sydapet, as it is found that example is not sufficient to influence the race of agriculturists, and that practical training is necessary for this purpose.

Bombay.

The Bombay Government have come to the conclusion that model farms are of much service in improving materials at hand, and in furnishing statistics with reference to the cost of production of different varieties of crops and the profits of the cultivator, and collecting information that may eventually form the basis of a popular manual for general circulation; but that experiments involving any considerable outlay of capital are difficult of success. Such crops as are capable of being produced in this Presidency do not repay extraordinary labour or the use of expensive manures, and machinery requires considerable modification before it can be profitably worked with bullock power on a small holding.

Central Provinces.

The operations at the Nagpore Model Farm were not productive of any very valuable results, and though some experience may have been gained, it was acquired at considerable cost. A small irrigation project was nearly completed, and it was confidently hoped that better results would be obtained another year.

AGRICULTURAL STOCK. Bombay.

Successful efforts have been made in Bombay by the agency of Government stallions to improve the breed of horses. A great difficulty to contend against is the constant deterioration caused by the number of miserable but entire animals found all over the country. The farmers are quite alive to the value of the stud horses provided by Government, and resort to them freely. Seven shows were held during the year, which were well attended and fully appreciated. Cattle shows were less successful, owing to the cheap value of cattle generally, and the little use they are put to. The stock of cattle, sheep, and goats has steadily increased. But numbers are by no means a satisfactory test, and often where animals are most plentiful they are most neglected and valueless. The limitation of the grazing area of late years has led to a better style of feeding; but cattle disease was, as usual, very prevalent; sheep and cattle receive little attention, and the breeds have sunk to the lowest possible point.

Animal food is hardly at all used by the Natives in Bombay; and the value

set upon agricultural stock is not sufficiently high to encourage much expenditure in the direction of rearing a better class of animal. AGRICULTURAL STOCK.

In Dharwar, where formerly numbers of nearly useless animals were allowed to roam at pleasure, they are now very usually stall-fed, and none are kept beyond actual requirement. It is hoped that the natural enhancement of the price of stock that will probably follow will draw more attention to cattle breeding, and to the systematic preparation of manures.

Efforts were made in the Punjab to improve the breed of both horned cattle and sheep, by the introduction of bulls and rams of superior breeds from the Hissar Cattle Farm. Punjab.

Three new cattle fairs were started during the year with some success, making with those previously established, 15 such fairs, at which the total number of cattle brought for sale was 186,315, against 174,773 in the previous year, and 121,754 in 1872-3.

In British Burma both live and dead stock of every kind increased, especially the former, and this notwithstanding the prevalence of cattle disease, which in the Rangoon district alone carried off 11,661 head of cattle. The veterinary surgeon who is specially employed in the province says that mortality among the cattle will always be great until the people learn the importance of taking care of them. There was a remarkable advance in the number of ploughs from 253,472 to 383,976. British Burma.

Exhibitions took place at the head-quarter stations, and upwards of 600 *l.* was distributed as prizes.

An agricultural show was held during the year in Northern Arakan, at which prizes were competed for by chiefs of savage tribes. Two of the principal Khamie chiefs were on the committee for awarding prizes. In almost every class there were several exhibitors.

The area cultivated with cotton in Madras, as compared with the preceding year, was diminished by 189,366 acres; the decrease was chiefly due to the falling off in the price of the article. COTTON. Madras.

The area under cotton in British territory in the Bombay Presidency increased by 51,101 acres, but in Native States (principally Kutch) it decreased by 87,655 acres. Bombay.

There was an increase of 46,447 acres in the area under indigenous cotton, while that under exotic cotton was less by 83,001 acres.

In the former, the area and the estimated out-turn exceeded the average of the four preceding years by 396,559 acres and 97,661 cwts. respectively.

The largest increase in the acreage and in the yield was in the Hyderabad Collectorate, where the latter is said to have reached 287·19 lbs. per acre. In other parts of Sind there was a considerable falling off, owing to heavy floods in the chief cotton-growing districts.

Dharwar saw-ginned cotton was on the whole of approved quality, although complaints have been made of the injury to the fibre arising from want of proper attention to the state of the gins. In Khandesh cotton a decided improvement was noticed, while that of Broach continued to hold the highest place in the market.

Some successful experiments in growing cotton were made on the Government model farms. At Salaru (in Sind) a yield of 473 lbs. per acre of clean cotton was obtained; much of this success was considered to be owing to the use of the English plough, and the deeper moving of the soil. American cotton also produced a heavy yield, but at a financial loss; it is believed, however, that its cultivation, if extended, would prove remunerative, as the superior staple would ensure its finding a better market.

In the Punjab, the area under cotton cultivation increased during the year but the out-turn was poor, and the prices realised were low. Punjab.

The only cotton in the Central Provinces having any commercial reputation is raised in the champaign country of Nagpore and Wurda; inferior qualities are produced in other districts. Central Provinces.

The area under cotton in Berar increased by 82,912 acres. Berar.

Cotton.
British Burma.

Cotton is grown in considerable quantities on the Kooladan and Pee rivers in Northern Arakan, and is largely exported to the Akyab district. Its cultivation was being extended. The ordinary hill cotton is inferior to the Egyptian in staple, fibre, and texture, but it yields a much larger crop, and it has been reported by the Bombay Chamber of Commerce to be somewhat superior to ordinary Bengal cotton. It is a hardy annual, and requires little cultivation.

Rice.
Bengal Rice Statistics.

The following are extracts from an interesting Note on the cultivation of rice by Lieutenant Ottley, Assistant to the Chief Engineer, Irrigation Branch, Bengal:—

Note on Rice Statistics.

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Rice is grown more or less in many countries; in America, in the south of France, in Spain, Piedmont and Lombardy, in Egypt, on the west coast of Africa, in the Islands of Bourbon, Mauritius and Madagascar; but the rice continent of the world is Asia, and in Asia, British India is pre-eminent as the territory where rice cultivation most prospers.

The largest crop ever known to be raised in America was in 1847, when it reached 51,893 tons; since then it has decreased, and in 1873 was only 14,294 tons, of which 10,932 tons were exported. Italy in 1867 exported 85,191 tons, and Spain in 1866 exported 8,975 tons; but these amounts are insignificant when compared with the exports of Asia generally and especially with those of British India.

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American rice, from the careful cultivation to which it has been subjected, has acquired a quality far finer than that of any other rice. Persistent efforts have been made by the Indian Government to introduce the Carolina varieties into India, but hitherto with only moderate success. On this point Sir George Campbell, in his Administration Report for 1872–3, writes thus:—"For Carolina rice cultivation an artificial supply of "water is necessary, and instructions have now been issued that the seed should be sown on "our canals, and duly irrigated. Carolina rice is much more highly priced in the market "than ordinary rice, and it may be that with command of water we shall be able to realise "from the cultivation of Carolina rice much that is now sunk on canals."

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The following figures may be useful as showing the immense importance of rice cultivation. Rice is the principal article of diet over Bengal proper, and among Bengalees is often the only food eaten; pulses, fish, vegetables, oil, salt, spices, and other condiments are only added to give the rice a relish. It is generally admitted that the consumption varies from $\frac{3}{4}$rds to $\frac{4}{5}$ths of a seer per head per diem. The population of Bengal and Orissa amounts to 44,913,305 souls; this number therefore at $\frac{3}{4}$rds of a seer per diem, or six maunds per head per annum, require nearly 270 million maunds of rice. In Behar, rice is still the principal food crop, though among the poorer classes, and especially in the district of Sarun, maize and barley are in a great degree the food of the people. * * The population of Behar is 19,736,101 souls, and allowing 3 maunds of rice per head per annum, we require nearly 60 million maunds of rice. Bengal and Behar together, therefore, consume about 330 million maunds of rice yearly, or say 12½ million tons of rice; add to this an export of half a million tons, and two million tons for seed grain and waste, and the total requirements amount to nearly 15 million tons of rice per annum, or say 574 million maunds of paddy. An article in the "Indian Economist," taking the consumption at $\frac{4}{5}$ths of a seer per head per diem, and allowing that amount for Behar, as well as Bengal and Orissa, arrived at a total requirement of nearly 20 million tons of rice, or say 765 million maunds of paddy. Both these calculations exclude the reserves which must be stored, and deal only with the actual yearly hand-to-mouth consumption. Taking the lower of the two estimates, the area yearly under rice probably amounts to from 30 to 40 million acres, or say from 60 to 80 thousand square miles; unfortunately, there is no reliable information obtainable on this point in any district, so that it is difficult to arrive at even an approximation to the area under rice cultivation.

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Rice being the staple food crop of Bengal, it is important to ascertain as nearly as may be the average out-turn per acre. Regarded also from a canal officer's point of view, it is important to ascertain the average out-turn of each description of soil, so that he may be able to estimate, more or less correctly, the influence of irrigation on the out-turn.

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The conclusions which I draw from a very careful study of a mass of statistics on this subject are as follow:—

1st. That *very good land in very exceptional years* will give an out-turn of 48 maunds per acre, and in such exceptional places as Hidgellee even as much as 54 maunds.

2nd. That the out-turn of the *same land in an ordinarily good year* may range from 36 to 40 maunds per acre. RICE

3rd. That the out-turn of *ordinarily fair low land in a really good year* may range from 30 to 36 maunds.

4th. That this *same land on an average of say ten years* will give a yearly out-turn of from 18 to 24 maunds.

5th. That *poor high sandy land* will give in a *good* year 18 maunds.

6th. That the *same land on an average of say ten years* will give a yearly out-turn of 12 or 13 maunds.

7th. That the *average out-turn for a number of years of all classes of land* will be about 15 maunds per acre.

These conclusions have reference only to crops depending on the rainfall or irrigated from sources the supply of which is not assured, and it appears to me that a never-failing supply of canal water would eliminate the unfavourable years, and would thus raise the average yearly out-turn of the irrigated crops from 15 maunds to between 24 and 30, according as the lower or higher estimate of a favourable out-turn is accepted.

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Doubts having been frequently expressed as to the value of, or necessity for, irrigation for rice crops, a great number of experiments to ascertain the out-turn of irrigated and unirrigated crops, were carried out in 1873 by Mr. Apjohn in the Midnapore district. The results may be here briefly stated thus. The unirrigated lands gave an out-turn of about one-fifth of a bumper crop, lands irrigated in October and November gave nearly half a bumper crop, and lands irrigated from June and July gave six-sevenths of a bumper crop. The crops irrigated from the beginning of the season exceeded in value the altogether unirrigated ones by *Rs.* 16 per acre, the value being obtained from the selling price of the paddy and straw on the ground.

Now, inasmuch as the year (1873) in which these experiments were made was one of deficient rainfall, the comparison is decidedly favourable to the canals and unfavourable to the unirrigated crops, and this proportion of out-turn, viz., $4\frac{1}{2}$ to 1, cannot, and will not, hold in ordinary years.

This much, however, may be safely inferred—*firstly*, that in bad seasons the canal irrigated crop will be say $4\frac{1}{2}$ times better than the unirrigated one; and *secondly*, that in ordinary years the canal irrigated crop will compare with the unirrigated one as 6 to 5 at least; this increase may not appear great when merely one acre is considered, but becomes of vital importance when the area of cultivation is reckoned in hundreds of thousands of acres.

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The experiments made in Bengal with Carolina rice were not more successful than in the preceding year, and it is not proposed to repeat them, except under experience and scientific supervision. Only two officers speak favourably of the culture of this rice. They are of opinion that Carolina rice can be grown successfully in any ground, and that it will give as good a return as any of the more hardy native varieties, but that, until by repeated trials a course of cultivation suited to the soil has been fixed, the cultivators are not likely to take to it. An important feature noticed in the cultivation is that this rice takes less time to come to maturity than any other kind, and that, if sown broadcast in an average soil, it will be the first to shoot into ear, and will be ready for cutting before any other kind; but that, when it is transplanted, this quality does not become so apparent as when sown broadcast early in the season. Carolina Rice.

Carolina rice was again grown with success in Rutnagherry in Bombay. The Natives prefer it as yielding a larger and heavier grain, and occasionally a second crop. Arable land being scarce, these qualities are appreciated.

Seed was distributed to the rice-growing districts of the Punjab, and the crops produced were very fair, but the complaint made by the people is that the grain, though large, is brittle, and that, as it breaks in the husking under the Native process, it is useless for sale.

Carolina rice succeeds well in the North-West Provinces, and does not require so much irrigation as the indigenous kinds. The difficulty of removing the husk is however an objection prominently pointed out by Native cultivators.

Chinchona operations in Sikkim continued to be very successful. The number of trees planted out during 1874-5 was 385,000 (of which 310,000 were the red bark variety), bringing up the total number in the permanent plantations to 2,765,000. The red bark trees were in good condition. Though CHINCHONA. Bengal.

CHINCHONA.

this bark is not so rich in quinine as the yellow variety, it apparently yields a greater quantity of alkaloid, which is an equally efficacious febrifuge.

Some experiments were made during the year in taking bark by Mr. M'Ivor's mossing process. Sufficient time had not elapsed for reporting decidedly, but it did not seem to promise well. The result of coppicing, on the other hand, was quite satisfactory.

The inquiries of the Government quinologist have resulted in a cheap and efficient method of extracting the febrifugal alkaloids from chinchona bark.

Madras.

The area of land in the Nilgherry Hills under chinchona is about 3,000 acres, and of this a large portion consists of Government plantations, but there are also extensive private plantations. The manufacture of amorphous quinine having ceased in August 1875, all the bark is now dispatched for sale in the London market. During the year 28,659 lbs. of mossed bark were shipped to England, and the prices averaged about 4 *s.* per lb.; in the previous year the average was below 3 *s.* per lb.

Bombay.

After a 10 years' trial it has been decided to abandon the attempt to raise chinchona plantations on the Mahableshwar Hill, the climate being unsuitable for such cultivation.

Mysore.

There are two plantations in Mysore. One of them was reported to contain 30,526 trees of different ages; the bark, however, was of an inferior kind, although it was found efficient in checking ordinary mild cases of intermittent fever. The other plantation, extending over 49,000 square yards, contains entirely *C. succirubra* plants, the bark of which has been favourably reported on by Mr. Broughton.

British Burma.

The cultivation of chinchona in the Sittang Division of British Burma was carried on with success. There were at the close of the year 19,234 plants growing well; a further area of 30 acres, to receive from 20,000 to 25,000 seedlings, had been prepared; and the nurseries contained 46,823 plants. The Government of India have decided not to manufacture quinine in British Burma, and also prefer that the extension of the cultivation should be carried out through the agency of the Karens, and they have accordingly suggested that four Karen youths should be sent to the Sikkim plantations to be trained in the work.

TEA.
Bengal.

The cultivation of tea is rapidly spreading in those districts of Bengal which are suited to the cultivation of the plant. The amount of the out-turn, though falling far short of the sanguine expectations of the first days of tea planting, is now amply remunerative, and the prices obtained in the market show that the average quality is good. The industry is indeed in an infinitely better and safer position now than it was 10 years ago. The cultivation has enormously extended; and the gardens are, as a rule, well filled with plants, highly cultivated, and carefully managed.

The Native labourers are well treated by the European planters, and are generally contented; the best of them come from Nepal, and bear a good character for industry and aptitude.

There were 26 new gardens opened in the Darjeeling district; the increase of area under cultivation was 3,193 acres, and the increase of out-turn was 971,201 lbs. The average yield of an acre was about 325 lbs.; in 1872 it was about 256 lbs. The average quality of the Darjeeling tea was inferior to that of some other districts, but it is believed that this fact has been recognised by many of the leading planters, and that improvement may be looked for.

The field for expansion of tea cultivation is stated to be indefinitely large in the long tract at the foot of the Darjeeling Hills, and there is also still room for increase in the Chittagong Hills and in Chota Nagpore.

No soil that has yet been explored appears to have proved better adapted for the growth of the tea plant than that of the Western Dooars.

Madras.

The tea plant was introduced on the Nilgherry Hills about 40 years ago, but it is only during recent years that any real progress has been made in the cultivation, which now covers nearly 2,000 acres. The China variety, with which the oldest estates are planted, is the most hardy, but grows slowly, and produces very little leaf; the Assam variety, on the other hand, grows rapidly,

and is a large producer of leaf, but it requires a sheltered situation on a rich fertile soil. The cross between the two is the most generally useful. TEA.

The private cultivation of tea in the North-West Provinces progresses; the out-turn for the season was 1,217,975 lbs. North-West Provinces.

Not less than 13,000 acres of land on the Nilgherries are now under coffee plantations, whereas 20 years ago the area did not exceed 500 acres. This great increase is entirely the result of private enterprise, and the industry is a benefit to the neighbourhood by the large employment of labour which it involves. COFFEE. Madras.

Allusions to the coffee crops of Mysore and Coorg will be found at pages 90 and 33 respectively. Mysore and Coorg.

Tobacco is grown extensively throughout Bengal. The Poosah farm is now being utilised by the Government for experiments in the cultivation of tobacco and coffee; and it was intended to obtain the services of an experienced curer, practically acquainted with the Manilla method of manufacture, to cure the crop of the next season. TOBACCO. Bengal.

The tobacco grown in Madras is of inferior quality, owing mainly to the great demand for the coarse article. This must apparently remain so until the Native growers can be convinced that the production of a better article secures higher profits. The existing defects in curing arise from want of capital. The Government have determined, while giving publicity to all that has been written on the subject, to leave the matter entirely to private enterprise. Madras.

The relinquishment of the Government Stud lands at Ghazeepore in the North-West Provinces afforded an opportunity for an experiment, on a large scale, in the cultivation of tobacco, and an arrangement has been entered into with a private firm for the conduct of operations under the supervision of a skilled American curer. North-West Provinces.

The cultivation of tobacco is carried on almost all over the Central Provinces in small richly manured patches near village sites. The quality of the indigenous varieties is considered inferior, especially by foreigners. The distribution of foreign tobacco seed has had no satisfactory results. Few agriculturists will undertake the cultivation owing to the risk of failure in the after-process of preparing the leaf for market. Central Provinces.

An experiment in the Model Farm was made with Virginian and Burma seed. The returns were 390 and 340 lbs. respectively per acre, and the quality of the leaf apparently good, but the Superintendent reported that to Native taste the flavour was weak, and this was attributed to the plants being cultivated on cotton soil.

Tobacco is grown throughout the Arakan Hill Tracts. There is no tax there on land under tobacco cultivation, and, owing to the tranquillity of the district, new land is being gradually taken up on certain streams, where, a year or two ago, people dared not live for fear of raids. The export is therefore increasing every year; but the actual quantity is not known. It is stated that during 1874 there were 4,000 acres under tobacco cultivation, and that each acre yielded from four to five maunds, which would give a total crop of 16,000 to 20,000 maunds. British Burma.

Several experiments appear to have been made in former years with different varieties of American tobacco seed, but until 1874 with no success. In that year some Manilla seed was obtained from Rangoon, and turned out exceedingly well, the leaves measuring three feet by one. Some seed was obtained from this crop, and sown again the next year with equal success. It is hoped that, with care, this industry may become a most valuable one.

The indigo crop of 1874 in Bengal was one of the worst on record, which was chiefly owing to the drought in Tirhoot, Sarun, and Chumparun. The discontent which once prevailed amongst the ryots in connection with indigo cultivation has much abated, though it has not wholly ceased. In Bengal proper the area under cultivation is much reduced; in Behar, on the other hand, it has increased, and the average annual out-turn is hardly less than it was 30 years ago. The Native zemindars have taken of late years to indigo planting. INDIGO. Bengal.

INDIGO. Madras.

The area under indigo in Madras was 231,454 acres, or 53,431 less than during the previous year. The decrease occurred chiefly in the North and South Arcot districts; in the former it was due to untimely rain, and in the latter to the lands ordinarily planted with indigo having been cropped with cereals.

FORESTS. Bengal.

On the separation of Assam from Bengal, only about 120 square miles of forest remained under the latter Administration. During 1874–5, additions were made to the reserved area amounting to 1,347 square miles, of which 885 were in the Soonderbuns, and 347 in Chittagong.

In determining the boundaries of these reserved forests great care was taken to avoid any infringement of private rights.

The sâl timber, for which Bengal has been so famous, exists largely in most of these forest areas. In past days there was much unnecessary destruction and irreparable waste of these trees, and it may be doubted whether the timber resources of the country are now equal to its prospective demand.

In the Darjeeling Hills the tea industry demands a large consumption, not only of timber, but of wood for fuel. There, also, the waste of timber has been considerable. Even within the tea estates the forests are cut down for fuel, without sufficient forethought being exercised for the preservation of some trees at least for the purposes of reproduction. But many fine sorts of trees, besides the sâl, namely oaks, maples, laurels, magnolias, toons, and some sorts of firs, still remain.

The soondri trees in the Soonderbuns furnish the best wood for the boats which are built in such great numbers throughout Eastern Bengal, and if the wholesale destruction of this wood had proceeded, great inconvenience would have been the result. Although the tree is of rapid growth, the best descriptions have for many years been cut down in so reckless a manner that the western parts of the Soonderbuns have already been exhausted to a large extent, and complaints are made that soondri logs of good quality are becoming scarce in the market. The Bengal Government have laid down regulations that in the reserved tract no soondri trees of less girth than three cubits shall be permitted to be cut, while trees of three cubits girth and upwards will be allowed to be cut on payment of half an anna per maund for the timber, and firewood and other forest produce will be charged for at half the above rate.

These regulations have been sanctioned by the Government of India, on the understanding that the change of system will be introduced gradually, and at first with much consideration for those who have hitherto been in the habit of using the forest without interference or control. Great care will be taken to prevent oppression on the part of the subordinate officials, and the rules will be made widely known. The fisheries are not to be interfered with, and increase of revenue is not to be regarded as the main object of the scheme. The Government has also directed further inquiry into the question whether some portion of the area might not be made available for reclamation, with a view to the growth of population in the neighbouring districts.

Sir R. Temple personally urged on the Minister of Sikkim the expediency of checking the reckless destruction by the people of the magnificent sâl and pine forests of that State. Thousands of these trees are cut down, and replaced by comparatively worthless crops of maize or hill rice; and it is a common practice with the cultivators to burn the forests of sâl and pine in order that the soil may be fertilised by the ashes, and the labour of ploughing be saved.

The suggestions of the Lieutenant Governor were received in an intelligent and friendly spirit, and arrangements are now in progress for the conservation of forests in particular localities. It is believed that, with care, they may become a considerable source of wealth to the State, by enabling it to supply the markets of Darjeeling and Northern Bengal.

In course of time there will probably arise in Darjeeling, when the local supply is exhausted, a great demand for fuel for the drying of tea products.

Bombay.

The work of selecting and demarcating forest reserves made considerable progress in all parts of the Bombay Presidency. In the Southern Division, excepting in Canara, the work was nearly complete. In Sind there was a gain of 17,120 acres of sand and mud, and a loss of 7,204 acres of land covered with forest of more or less value. Measures have been undertaken with a view to render these encroachments of the Indus as little injurious as possible.

Some difficulty is found in preserving forest lands from undue encroachment by cultivation; while, on the other hand, the utmost care is taken to prevent the rapid advance of forest conservation causing distress, and gradual are preferred to sudden measures. FORESTS.

The plantations were doing well in all directions. In Surat nearly 200,000 seedlings were planted out. In Canara upwards of 9,000 seedlings were transplanted, but the season was not favourable for the work. In the Deshnoor plantation about 50,000 teak, mango, and other trees were firmly established, and about 40,000 in the Dharwar reserves.

Forest demarcation progressed in the Punjab, and much was done in the way of sowings, and of extension of the plantation area. Arrangements were made for the transfer in the Kangra district, under agreement with the landowners, of 19,650 acres of forest land as the absolute property of Government. Punjab.

The Assam forests may be divided territorially as follows:— Assam.

1. The Brahmapootra valley, comprising the districts of Goalpara, Kamroop, Darrang, Nowgong, Seebsaugor, and Luckimpore.
2. The Surma valley, comprising the Sylhet and Cachar districts.
3. The regions under political control only, viz., the Garo Hills, Khasi and Jynteah Hills, and Naga Hills.

The Brahmapootra valley consists of rich alluvial plains, comprising the deposits of ages, as washed from the Himalayas on the north, and the lower mountains, as the Garo, Khasi and Jynteah, and Naga Hills, to the south. These alluvial plains are either but little elevated above the flood-level of the Brahmapootra and its tributaries, or so low that large extents of them are flooded for three or four days once or twice in the year. Large areas are annually washed away, through the Brahmapootra changing its course, and are re-formed in different localities; and, as far as forests are concerned, they cannot, if occupying the banks of the Brahmapootra, be depended on.

The Surma valley is very similar, the whole district of Sylhet consisting chiefly of a large alluvial plain, formed by the deposits washed from the surrounding mountains, and even more subjected to inundations than the plains of the Brahmapootra valley. The Surma and its tributaries have, however, more permanent banks, the shifting of which is trifling compared with that of the banks of the Brahmapootra.

The whole province, except the cultivated area, may be designated as forest, if the grass lands with trees scattered over them more or less abundantly be included in that term. The sâl forests are met with chiefly in the Garo and the Khasi and Jynteah Hills, and in the Goalpara, Kamroop, and part of the Nowgong and Darrang districts.

The supply of timber and other forest produce, as well as grazing grounds for ryots, are so abundant that they are granted free, and without any necessity of permitting access to the reserves; and this fact, together with the docility of the people, obviates the necessity, for the present at least, of any strict forest rules.

What is however required is that none of the better forests should be given up for cultivation until the Government forests, both reserved and open, are demarcated, and that this work be carried out with as much expedition as practicable, since without this there is always great danger in Assam of encroachment on the forests by temporary cultivation and alienation of Government forests by sale or lease, according to the views the respective Deputy Commissioners take of the necessity for forest conservancy, and their knowledge of the forests in the districts.

Owing to the comparatively exhausted state of the Cachar forests, the small extent of the Sylhet forests, and the absolute non-existence of forest in the Bengal districts beyond Sylhet, it will require the greatest possible vigilance and care to keep up the supply of timber at the rate at which it is at present being removed by the very extensive trade which exists.

The denudation of forests on the Khasi Hills is to some extent attributable to the extensive manufacture of charcoal used for iron-smelting.

Sufficient time has not yet elapsed for much to be reported in the way of forest operations under this new Administration.

The area under the charge of the Forest Department in the Central Provinces increased during the year from 1,902 to 2,323 square miles, through the transfer Central Provinces.

FORESTS.

of promising tracts of jungle land, a process which it is intended shall continue until the reserved area is considered sufficiently great to supply the wants of the population. Such additions will be made gradually and not suddenly; an opposite course would necessitate immediate increase of establishment, besides creating discontent and distrust among the people.

The financial results for the year in this province are the most favourable of any since the formation of the department. It is chiefly from the reserved forests that the increased income has been obtained.

Experiments which have been made in the propagation of lac have turned out so far very satisfactorily. In a selected part of the Satpura reserve the seed lac was applied to 1,174 trees, and the insects had taken well, but the crop was not due till November 1875. Another experiment was tried in the southern forest, but unfortunately failed through fire getting in and sweeping under the trees. In the central forest division it is intended to gradually extend the area now occupied by the insect up to four or five square miles. The Conservator looks forward with tolerable certainty to raising from this source in the course of a few years a very considerable revenue.

The cost of collecting lac in the forest averaged *Rs.* 4. 1. 11. per maund, and the price realised in the nearest market was *Rs.* 20 per maund. Eventually, if the propagation succeeds, the cost of collection will be merely nominal, as the lac would be gathered in one situation, instead of being searched for over large forest areas as at present.

Berar.

The area of forest plantations in Berar was increased during the year by 2,390 acres. There were altogether 661 square miles of State forests, and about 3,600 square miles of unreserved forest, which is controlled by the civil officers in charge of districts.

The Deputy Conservator makes the following remarks in regard to the results derived from the protection of forests from fire:—

"As year after year fires continue to be excluded from the above forests, the "beneficial effects are becoming more and more apparent. The grass on the "better wooded hill-sides is gradually disappearing, and the surface of the soil "becoming covered with leaves and other vegetable matter in various stages of "decay. In the more open portions of the forest natural reproduction is "making steady progress; and it is satisfactory to observe that teak increases "almost as rapidly as other trees of less value.

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"The effects, however, of the exclusion of jungle fires are not confined solely "to the vegetation of the reserve. Climatic and other changes are also taking "place, of which the following are examples popularly recognised.

"The extreme heat of the hot weather is modified by increased moisture, "diminished radiation, and other effects of a dense and extensive undergrowth; "whilst in open tracts, during the cold season, frosts are becoming common.

"Water is now much more plentiful throughout the reserve than it was a few "years ago. There is scarcely a nullah of any size that does not contain a few "pools of water in the hot weather, whereas formerly it was the exception to "find water anywhere after February, except in the main streams.

"In former years, sudden floods used to occur regularly in the Seepna, "Kapra, and Kandu rivers at the commencement of the rains. Since 1871 "these floods have occurred later, and with less severity year by year, which is "attributed to the effect of the unburnt vegetation in retarding surface "drainage.

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"There is less mortality at the commencement of the rains among the cattle "in the reserve than in the unreserved forests. The cattle are, moreover, in "better condition. This is attributed to the cattle not being able to gorge themselves with young green grass as they do in burnt jungles."

On the other hand, it is noticed that the climate of the reserve appears to be becoming more unhealthy every year; fever and dysentery are prevalent at all seasons, but more particularly at the end of the rains and commencement of the cold weather. The plantations also suffer extremely from the depredations of field rats, whose increase is no longer checked by annual fires.

British Burma.

There were 282 square miles of forest reserved during the year in British Burma, making a total of 563 square miles. It is proposed to extend the area

considerably. Teak cultivation was extended by 623 acres. The out-turn of the Government forests was 37,990 tons of teak, and 4,665 tons of other woods. The net profit of the department was 41,216 *l.* It is expected that stricter conservancy of teak trees will, in future years, considerably modify the revenue, unless it can be made up from other sources. The system of "permits," under which the best and most easily worked logs were got out in large numbers year by year by private persons, has, with very few exceptions, been stopped, and the forests are to be worked by direct Government agency. FORESTS.

Lac breeding was carried on successfully in the Rangoon Division. A nursery of three acres was established, and an additional area of 19 acres was stocked with several thousand transplants of three to five years old, 61 per cent. of which succeeded. From the Sittang Division 91 lbs. of lac were sent out; 54 lbs. were subsequently obtained, and applied to 117 trees, on all of which lac had formed.

The successful plantations of teak and cultivation of lac in the Northern Arakan Hill Tracts show that that district is capable of considerable productive power.

VI.

PUBLIC WORKS.

IRRIGATION. Bengal.

As regards irrigation works in Bengal, the year was one of inquiry rather than of rapid progress. The Soane works progressed fairly. The area irrigated from the Orissa Canals increased from 12,571 to 22,459 acres; that from the Midnapore Canal from 36,349 to 72,318 acres. The navigation returns of the latter are very promising. It is, however, unfortunate that this canal is unable to maintain a constant and regular supply of water, which is most liable to fail at the time of the year when it is most wanted; while, on the other hand, the canal is also exposed to very serious injury from the violent floods which come down from the river Cossye.

The engineering works of the Soane and Orissa Canals are stated by the Lieutenant Governor to be excellent in all respects, creditable to the Government service, and honourable to British skill and science. He has submitted, at the request of the Government of India, a scheme for the completion of the Orissa system, by which the Cuttack district would be fairly protected from drought, the means would be afforded of protecting a part of the Balasore district, and a through canal navigation between Cuttack and the Hooghly below Calcutta would be opened. A portion of the proposed outlay has received the sanction of the Secretary of State.

Sir R. Temple has further recommended a scheme whereby the five principal streams which permeate the Sarun district, running from the river Gunduk to join the Ganges, should be improved so that their waters might be made available for irrigation. This project, and a similar one for North Tirhoot, met with the approval of the Government of India, and are being matured.

An extension of the Gunduk embankment was carried out in Chumparun, and a smaller one also in Tirhoot. These works gave employment to some 45,000 labourers in a very distressed part of the country.

The admission of a supply of fresh water from the river Damooda into the bed of the Kana Nuddee, which was mentioned in last year's Report (p. 10), has conferred very great benefits on the people of the district. They have found themselves for two consecutive years in the enjoyment of a stream of fresh water, valuable alike for domestic use and for irrigation.

Madras.

The following is a statement of the "extraordinary" capital outlay during the year on new works in the several districts of the Madras Presidency:—

	£.
Godavery - - -	30,926
Kistna - - - -	10,688
Nellore - - - -	4,298
South Arcot - - -	2,000
Tanjore - - - -	458
Tinnevelly - - -	5,187
	£. 53,557

The "ordinary" expenditure on new works amounted to 26,927 *l.*

Bombay.

The progress made with irrigation works in Bombay was satisfactory, but no new work of any magnitude was undertaken, except the Kusmore and Begari embankment in Sind. By the end of the year 38 miles of this work were completed.

Punjab.

The total area irrigated by canals in the Punjab was 1,208,073 acres. On the Baree Doab Canal the excavating of the Kasur and Sobraon branches was nearly finished, and the remodelling of the canal was put in hand. The new headworks and distributaries of the Western Jumna Canal were pushed on, and the Sirhind Canal made steady progress. A large embankment for protecting the district of Moozuffergurh from devastations by the Indus was nearly completed.

A remarkable development of irrigation was effected in the Ferozepore district by the energy of Captain Grey, the Deputy Commissioner, by means of inundation canals from the Sutlej. In the space of a few months 10 canals were con-

structed, with an aggregate length of 213 miles, and with capacity for watering an area of 100,000 acres; and this work was accomplished by the district establishments without any cost to the State. IRRIGATION.

The capital sunk on irrigation works in operation in the North-West Provinces up to the end of 1874-5 was 3,191,455 *l.* (of which 154,642 *l.* was expended during the year), not including the Agra Canal, on which 644,864 *l.* has been sunk, and which only began to irrigate in the last half of the year under review. The profits on the works in operation during the year are computed at 6·5 per cent. on the capital. The per-centage of net direct profits from the Ganges Canal is stated at 3·78, and from the Eastern Jumna Canal, 18·6; including indirect profits, the per-centages are 5·29 and 26·39 respectively. North-West Provinces.

On the Lower Ganges Canal there was an expenditure during the year of 303,716 *l.*, principally upon the weir and headworks, the massive foundations of which were nearly completed. Steady progress was made in several works connected with the remodelling of the old Ganges Canal. Revised estimates were sanctioned for the completion of the Rohilkund Canals.

The East Indian Railway is reported to be fairly successful as regards its traffic both in passengers and in goods, though in the latter respect it has a formidable competitor in the river. The diversion line between Ghogah and Bhaugulpore was completed, and was officially opened for traffic on the 13th April 1874. This line was severely tried by unusually high floods during August and September, and a large quantity of rubble stone had to be used to protect the slopes. RAILWAYS. East Indian Railway.

The traffic of the Calcutta and South Eastern Railway made but little progress during the year. Bengal Railways.

The Northern Bengal line was rapidly pushed on. It was commenced in 1874 as a relief work, and a good portion of it was to be opened during the current year.

There was much discussion during the year with reference to the important subject of improving the third class passenger traffic on the Bombay Railways by making the service more popular with the classes who avail themselves of it. There has been considerable improvement in the treatment of passengers of the lower classes in recent years, but there are still many points in which improvement is needed. The traffic in the "mofussil" showed little or no tendency to increase. On many parts of the Great Indian Peninsula line there were fewer travellers than there had been in previous years. Bombay Railways.

The Nizam's State Railway, 120 miles in length, was opened on the 9th October 1874. It is worked by the Great Indian Peninsula Company, but is maintained by the Hyderabad State. It returned a net profit of 679 *l.*, the gross receipts amounting to 11,464 *l.*

On the Sind, Punjab and Delhi Railway, the Sutlej Bridge was repaired, and was re-opened for traffic in May 1874. Punjab Railways.

On the Punjab Northern (State) Railway all the great bridges over the Ravee, Chenab, and Jhelum approached completion.

The Sutlej Bridge works on the Indus Valley line were being pushed on with vigour; it is hoped that they will be completed in 1878. Some delay has been caused on this line by want of funds, and by the necessity of preparing revised estimates for the broad gauge.

The Hathras and Muttra Light Railway in the North-West Provinces is the first of a series of projects for facilitating communication with large centres of trade or population lying off the main lines of railway. The construction of this line was vigorously carried on in 1874-5. North-West Provinces Railways.

The branch railway from Moradabad to Ramnuggur was surveyed and sanctioned, but the work was stopped at the instance of the Oude and Rohilkund Railway Company on a question of economy. The statistics collected during 1873 and 1874 show an improving traffic between the hills and the plains in the direction of this line, and the Government of the North-West Provinces strongly urges its prosecution.

On the Rajpootana State Railway various extensions were successively opened for traffic during the year, aggregating 237½ miles. In one direction the line was carried on from Bhurtpore to Sambhur, and in another from Rewaree to Bandikeen. Rajpootana State Railway.

RAILWAYS.
Wurda Valley Railway.

The Wurda Valley Coal Railway was opened on 1st February 1874; and during the year under review an extension of this line to Wurrora was proceeded with.

ROADS AND BRIDGES.

The total outlay on communications in Bengal amounted to no less than 1,321,589 *l.*, consisting of 327,794 *l.* from provincial and 993,795 *l.* from local funds. Of this amount, 1,046,706 *l.* was on account of relief works.

Bengal.

The Hooghly Floating Bridge was satisfactorily completed and opened to the public in October 1874.

Bombay.

A large amount of useful work was done in Bombay in connection with roads.

Punjab.

A commencement was made during the year in metalling the roads connecting Sealkote with Wuzeerabad, Kohat with Bannu, and Peshawur with Badabir.

The Hindostan and Thibet Road was extended for about six miles, widened in some parts, and was open for traffic along its whole length from April to December.

The Kangra Valley Road was completed, and opened for cart traffic from Pathankote to a point opposite Dhurrumsala; and considerable progress was made in its continuation to Pahlunpore.

The important work of re-aligning and greatly improving 12½ miles of difficult mountainous road on the Kullu route, from the banks of the Tsarap river, to and over the Lachalang Pass, was effected, with the cordial consent and assistance of the Maharajah of Cashmere. This work, which was to be vigorously proceeded with, will have the effect of removing obstacles to the traffic and free intercourse between British India and Turkestan, while, by not only facilitating transit, but also cheapening and increasing the supply of carriage, it will have the desirable result of checking the present cruel practice of overloading animals.

Rajpootana.

The portions of the Agra and Ahmedabad Road which lie between the Bhurtpore and Jeypore States were reported by the Superintending Engineer to be in a very creditable condition. They are metalled and bridged, except at the larger rivers, and are entirely maintained by the States. From the Jeypore boundary to the south-western boundary of the Ajmere district the road is maintained from Imperial funds. Beyond this point it runs through Marwar, and afterwards enters the Serohi State at Erinpoora, and is metalled as far as Serohi. The Ajmere and Mhow Road, for the first 41 miles, is in British territory; this portion is metalled and bridged, and is in a fair state of repair. It then enters the Meywar State, through which it runs for some 80 miles, the first 40 miles of which are metalled. The total distance from Ajmere to Neemuch is 148 miles, of which 81 are metalled. From Neemuch towards Mhow the line runs for 70 miles through different States of Central India. It is metalled throughout, and is supplied with culverts for minor drainages. The main rivers are not bridged. The whole cost of maintenance and construction has been hitherto defrayed from Imperial funds.

Central Provinces.

The Eastern Road, in the Central Provinces, over which the vast grain traffic with Chutteesgurh passes, was pushed on towards completion. When the two last sections have been finished, a metalled road will exist from Nagpore to Raipore, a distance of 179 miles, and except at the very large rivers the road will be bridged. These large rivers can, however, be without difficulty forded in the dry weather, and where, owing to the nature of their beds, they present difficulties to traffic, they will be provided with temporary bridges.

Work was vigorously prosecuted on the Saugor Road, which connects that station with the Great Indian Peninsula Railway, and opens up the most direct route by which the produce of the Saugor District may find its way to the railroad. This road is said to satisfy a long-felt want. For 75 miles it was so far completed as to admit of wheeled traffic at all seasons except for a few days after heavy floods.

Another important road in the Central Provinces is one to connect Mandla and Jubbulpore, and this also progressed during the year.

VII.

MINERAL RESOURCES.

The coal mines of Burdwan generally did a good business during the year. It is said that the Madras railways are likely to be supplied with coal from Bengal, which will tend to develop the mines still further. COAL. Bengal.

In the Sonthal Pergunnahs coal, iron, copper, and lead are known to exist; and coal of a fair quality is found in many places close to the surface.

Experiments with some coal from the Talchere field are favourably reported on. The prospect of utilizing on any large scale the coal fields of Orissa depends, however, on the discovery of coal in places which are accessible by a water route, and with this object the Government of India has sanctioned the employment of an officer of the Geological Survey to explore the Talchere coal field.

There are indications of coal at Narage, near Cuttack, and also in Dhenkanal, on the banks of the Brahminee river.

Considerable progress was made at the Wurrora coal mines. Some more powerful machinery was obtained to keep the pits dry, and a second shaft was in course of being run down. Until this shaft was complete, the pits would not be in full work. Two bore holes put down during the year resulted in a discovery of superior coal, and in materially increasing the ascertained areas of the seams. The supply of available coal at Wurrora is now estimated to be 40 million tons, or sufficient, at 500 tons a day, to last for 260 years. Some trials on the railway with ordinary Wurrora coal showed a consumption only about 13 per cent. more than that of English coal; with selected coal, still better results would be obtained. Central Provinces.

From the Mhowpani mine some 15,000 tons of coal were delivered to the Great Indian Peninsula Railway. Attempts to discover a continuation of the Nerbudda coal field have so far been unsuccessful, but they will be continued.

The exploration of the Pisgaon coal fields has been completed, with the following results. The extent and capacity of the fields are found to be considerable; the analysis and practical testing of the coal have determined it to be of the same quality as that of the Wurrora fields; and data have been collected to enable a site for a colliery to be fixed on at once, when the time arrives for opening those fields. Meanwhile they will remain undisturbed until the Wurrora field, on the other side of the river, is no longer able to supply the demand from that part of India. Berar.

Coal exists in British Burma on the banks of the Tenasserim river and in other parts, but it has never been worked to any extent. It was discovered during the year in small quantities in the hills of Northern Arakan, but is inaccessibly situated, and is not likely to be of much practical value. British Burma.

At Raneegunge, on the East Indian Railway, iron, coal, and limestone have been found in abundance. An important company has been established, under the title of the Bengal Iron Company, for the opening of iron works in this district. IRON. Bengal.

At Narainpore, in the western division of Moorshedabad, there is a newly established iron-smelting business. The ore is obtained chiefly on the confines of the Sonthal Pergunnahs. There are six different establishments in existence, and they are reported to have smelted about 200 maunds each during the year. The manufacture thus far would, however, seem to be not very profitable.

Mines are believed to exit in South Bhaugulpore, but they are not worked. The small quantity of iron that is smelted in the district is pronounced by workmen to be superior to the imported metal.

Iron of excellent quality is found in many parts of the Orissa hills; it is smelted by the native process, and finds a ready sale. In Ungool and Talchere iron and coal are found together.

The question of utilizing in India the iron resources of Kumaon has been the subject of very much discussion. Mr. Bauerman, who was deputed to examine and report on the iron works, submitted a preliminary report in 1873, in which he did not speak favourably of Kumaon as a site for iron manufacture. On the other hand, the Commissioner of the district (General Ramsay) thinks that North-West Provinces.

IRON.

"there is a vast field of profitable industry lying at the foot of these hills un-"developed, and the continued neglect of it is a wrong to the country." It has recently been determined, by an agreement between the North-West Provinces Government and the Kumaon Iron Works Company, to set this important question finally at rest. By this agreement the Government is allowed, without payment of rent for three years, the use of the whole of the company's works, with all block and stock now existing; the Government may surrender the works to the company at any time that it pleases before the expiration of the three years, on giving six months' previous notice; the Government agrees to restore the works to the company in a condition no worse than they were when the Government took possession; a fair allowance will be made for depreciation by use, after taking into account the value of any additional works or improvements made by the Government; but if the total value of the works be increased by the operations of the Government, no claim will be made against the company on that account.

Central Provinces.

The experiments which were sanctioned in the previous year for the production of pig iron at the Lohara field, in the Chanda district, and for its conversion into steel, had not been commenced in the year under report.

Iron manufacture is an important industry in the Jubbulpore district. For some years back certain of the mines have been worked by Mr. Olpherts, a district engineer on the East Indian Railway; and with the application of capital and European appliances a considerable development has already been attained. Mr. Olpherts was recently granted a 10 years' lease of these mines for the sum of 200 *l.* per annum for the first five years of the lease, and for a royalty of 5 per cent. on the out-turn for the last five years.

Mysore.

Iron is the only metal found in any considerable quantity in Mysore. The amount manufactured in 1874-5 was 23,468 maunds.

GOLD.
Madras.

An examination was made in the year under report of the auriferous rocks in part of the Wynaad district. Gold has long been obtained in this district from alluvial deposits, but in such small quantities as to prevent the operations being very profitable. The question has recently arisen whether quartz-mining may not prove more productive, most of the quartz-reefs being more or less auriferous. Preliminary experiments have given an average proportion of 7 dwts. of gold to a ton of quartz. Several applications have been made for land in the Wynaad, ostensibly for coffee-planting, but really for gold-mining, but the Government have determined to act on the principle that land known to contain mineral wealth should be removed from the category of cultivable land, and be granted on special agreements only.

Mysore.

Gold has been long known to exist in the Kolar district of Mysore, where Natives have been in the habit of obtaining small quantities by washing. During the year under review mining operations were commenced by an European whose attention was attracted to the prospect of extracting the ore from the quartz by proper appliances, and certain privileges were granted to him by the Chief Commissioner for prospecting the ground and holding a lease of selected parts for a definite period. The result of the experiment is still uncertain.

TIN.

Tin exists over a large extent of country in the Mergui and Tavoy districts of British Burma, but until lately had only been obtained from alluvial deposits; now, however, lodes or veins of the mineral have been discovered in the Malewoon township. The right of mining there has been leased for 30 years to a firm of Rangoon merchants, who are carrying on operations vigorously, and have discovered in the neighbouring hills a large lode containing tin in valuable quantities.

VARIOUS MINERALS.

The whole of Chota Nagpore is full of mineral wealth, and it only requires to be thoroughly opened up by roads and other communications, if possible, to render all this hidden wealth available to the country at large.

There are valuable quarries near Balasore where a description of chlorite, or black marble, is obtained, from which plates, dishes, cups, and other household utensils, are made; these obtain high prices, and are much sought after.

In the Hazareebagh district there is a talc mine, from which 5,000 maunds of talc yearly, valued at 2,500 *l.*, are distributed.

VIII.

MANUFACTURES.

COTTON.

THERE is no immediate probability of cotton manufacture in Bengal rising any considerable proportions; some factories near Calcutta, however, are understood to be prospering. Bengal.

Bombay.

The only manufacturing industry on a large scale in the Bombay Presidency which is remunerative is the spinning and weaving of cotton. There were 28 companies in the capital, besides 12 in the interior; fears are entertained lest over-speculation should check the healthy development of this desirable industry. The complaint is very general among Native manufacturers that their goods are being pushed out of the market by machine-made European articles. As association of capital and labour rarely exists among the Natives, they are placed at a great disadvantage as against united effort intelligently directed. On the other hand, besides the advantage of the raw material being produced on the spot, they enjoy the additional benefit of the cheapness of Native labour; and the result is apparent in regard to the heavier and coarser descriptions, which are now rarely imported. The Native products are stated to be finding a ready sale in Russia, America, and China.

There were 2,379 steam gins at work, being an increase of 93 over the previous year. All these are in the Northern Division, except six which were started in Dharwar during the year under review.

The use of machinery is extending in Kattywar. The prospects of all the presses in this agency are considered good, but those of the ginning factories more doubtful. The staple is said to be broken by the machinery more than by the country gins.

Central Provinces.

The manufacture of cotton cloth is an industry diffused all over the Central Provinces; hand-looms may be found at work in any considerable village. The agricultural and labouring classes prefer their home-made stuffs to any other. The produce of the looms in a few towns is of a superior quality and finish, and much of this is exported to Western India, and elsewhere. The gradual increase of foreign importations, and the growing taste for English piece-goods, and latterly for the productions of the Bombay mills, have materially affected this industry, and many of the weaving class have taken to other pursuits; as yet, however, the manufacture of the coarse strong stuffs for the labouring classes, and of some kinds worn by the better classes, are left wholly to the village hand-looms. A first-class cotton-mill, designed, it is believed, to meet the very humblest demand for cheap clothing, has recently been set up at Nagpore, to be worked by English machinery and under European supervision; and it remains to be seen what effect this will have on the struggling Native industry.

SILK.

Bengal.

The manufacture of silk in Bengal has so fallen off that it can no longer be sold at a remunerative price. The work of the tussur silk-weavers is so indifferent, and even the pieces are so unequal in quality, &c., that the Calcutta merchants are unable to do business with them. If a better and more fairly-priced article were produced, it is believed that it would find an European market. It is hoped that a better future may be in store for this manufacture if European capital is applied to it.

North-West Provinces.

Towards the end of 1874-5, the Government of the North-West Provinces resolved to open a silk farm in the Doon, but the details were not settled until nearly six months after the close of that year. A plot of 90 acres, planted with mulberry trees, has been leased for five years; silkworm eggs have been sent from Cashmere and Japan; and skilled silk-reelers are expected from the latter country. The annual cost of the operations is estimated at about 3,000 *l.*

Central Provinces.

Silk cultivation, and its manufacture into silk pieces for Native wear, is an industry of moderate dimensions in the Central Provinces, but one that is capable of indefinite expansion.

The tussur worm thrives on the leaves of trees which grow in nearly every district of the Central Provinces, and succeeds well in the hands of the castes

Silk.

who make sericulture either their sole occupation or, as is more common, an additional employment. The *modus operandi* is rough, but it is so far effectual that the worms are raised and cocoons of silk produced in quantities proportionate to present demands. With a view to stimulate a larger foreign demand, experiments are being carried on for the improvement of the silk in its cocoon stage, and it is attempted to produce finer cocoons by a stricter domestication and different feeding of the worm.

It is hoped that it may be possible to introduce the Chinese silkworm into Sumbulpore. Should this prove feasible, it is intended to establish mulberry gardens at different places, and to make a systematic effort to establish the industry in the district.

Various Industries,* Bengal.

Manufacturing industry appears to be at present in a state of decadence in Bengal, though there are signs of its rallying in the future. While the old indigenous industries have declined, various new manufactures, worked by machinery, are springing up, in particular those relating to jute fibre, cotton, and sugar. These are already affording employment to many thousands, and the Natives are said to show great aptitude for mechanical work.

In Orissa there was a largely increased import of materials which were worked up into local manufactures, in particular, of metals, and cotton twist. Skilled labourers are generally in great demand, and receive excellent wages.

In Dacca, muslin of a very fine quality, but very expensive, is made. Formerly this was in great demand, but of late years it has much declined in commercial value, and is now only made to order.

It appears that in the Patna Division the import of foreign goods has not led to the decadence in the trade of the country-weaver that it has in some other parts. The stout class of cloths which they weave there is still in great demand.

The principal manufactures in the Presidency Division are gunny-bags, indigo, goor (molasses), and sugar; also cotton cloths of a superior description, and brass utensils. The manufacture of gunny-bags has been much on the increase.

In the Rajshahye Division indigo† is an important manufacture, but, except in the districts of Moorshedabad and Rajshahye, the business is now wholly in the hands of the Natives, and carried on apparently with but little appliance of capital, and in a very small way. The article is manufactured entirely for export; in Rungpore only an inferior class of indigo is made for sale to traders from Bhootan.

Punjab.

The aggregate value of the out-turn of manufactures in the Punjab showed a satisfactory increase of 190,174 *l.* The chief increase was in the production of gold lace, brass and copper vessels, woollen, cotton, and leather goods. In silk and oil, and some other articles, a falling off appeared.

British Burma.

Weaving is carried on throughout British Burma, silk and cotton goods being manufactured in large quantities, chiefly for home use. English yarns are largely employed in these manufactures.

Goldsmiths' and silversmiths' work, and ivory carving, are stated to be improving in quality and finish, as well as in price, owing to the increasing demand for specimens by the European community.

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* Information connected with the manufacture of salt has been included in the chapter on Finance.

† With regard to indigo in Tirhoot, &c., *see* p. 39.

IX.

TRADE.

The total Foreign Trade of British India (exclusive of Government Stores and Treasure) during 1874–5 was as shown below :— FOREIGN TRADE OF BRITISH INDIA.

	Imports.		Exports.	
	Merchandise.	Treasure.	Merchandise.	Treasure.
	£.	£.	£.	£.
Bengal - - - -	17,369,447	2,887,728	22,014,048	758,170
Madras - - - -	3,311,543	501,304	6,536,638	258,300
Bombay - - - -	11,514,053	4,695,465	23,647,221	566,086
Sind - - - - -	289,841	1,643	1,076,847	4,837
British Burma - - -	2,160,352	54,906	3,037,492	5,328
£.	34,645,236	8,141,046	56,312,246	1,592,721
	£. 42,786,282		£. 57,904,967	
	£. 100,691,249			

Compared with the two preceding years, the results are as follows :—

	1872–3.	1873–4.	1874–5.
IMPORTS :	£.	£.	£.
Merchandise - - - - -	30,473,069	31,644,697	34,645,236
Treasure - - - - - -	4,556,585	5,792,534	8,141,046
TOTAL IMPORTS - - - £.	35,029,654	37,437,231	42,786,282
EXPORTS :			
Merchandise - - - - -	55,227,495	54,960,778	56,312,246
Treasure - - - - - -	1,273,979	1,879,071	1,592,721
TOTAL EXPORTS - - - £.	56,501,474	56,839,849	57,904,967
TOTAL TRADE - - - £.	91,531,128	94,277,080	100,691,249

The trade was divided as follows among the different Continents :—

	Imports.	Exports.	TOTAL.
	£.	£.	£.
Europe - - - - - -	35,102,772	35,505,546	70,608,318
Asia - - - - - - -	6,518,469	18,622,775	25,141,244
America - - - - - -	193,506	2,177,418	2,370,924
Africa (including Mauritius and Bourbon) - - - - -	737,901	1,463,692	2,201,593
Australia (including New Zealand and Tasmania) - - - -	233,634	135,536	369,170
TOTAL - - - £.	42,786,282	57,904,967	100,691,249

Of the European trade more than six-sevenths was with the United Kingdom, and the latter exceeded by upwards of four millions sterling the corresponding trade of the previous year.

FOREIGN TRADE OF BRITISH INDIA.

The value of the trade with China is compared below with that in the two preceding years:—

	1872–73.	1873–74.	1874–75.
IMPORTS:	£.	£.	£.
Merchandise	1,347,875	1,412,765	1,520,114
Treasure	1,022,241	1,725,618	1,436,887
TOTAL IMPORTS £.	2,370,116	3,138,383	2,957,001
EXPORTS:			
Merchandise	12,137,397	11,494,172	11,648,189
Treasure	121,739	12,460	102,613
TOTAL EXPORTS £.	12,259,136	11,506,632	11,750,802
TOTAL TRADE £.	14,629,252	14,645,015	14,707,803

A full review of the foreign and interportal trade of British India accompanies the Trade and Navigation Statement for 1874-5, which has been presented to Parliament.

TRADE. Calcutta

The value of the trade of Calcutta with foreign countries and with ports in other Presidencies, so far as it relates to merchandise, is compared below with that of the preceding year:—

	1873–74.	1874–75.
	£.	£.
Imports	15,967,530	19,729,843
Exports	27,056,457	26,974,414
TOTAL £.	43,023,987	46,704,257

It will be seen that there was a considerable improvement in the imports, while in exports there was a decline.

The importations of rice on Government account (not included in the above figures) reached in value 1,226,016 *l.*

The imports of bullion and specie amounted to more than four millions.

The exportation of jute fibre, though large, was still checked by reason of over-production, and of the foreign market having become overstocked, and also owing to inferior brands having got into the market under the influence of high prices. Jute manufactures, on the other hand, show an increase of 17 per cent., mainly in exports to Singapore and China. Bombay, Madras, and Burma, take by far the largest portion of the exports under this head; the foreign trade is mainly with North America, the Straits Settlements, and Australia.

The indigo crops in Tirhoot and the neighbouring districts affected by the drought having been only one-third of those in the previous year, the short production proportionately affected the export. Since 1868–69 the value of this trade has regularly increased in comparison with the quantity. The United Kingdom takes about three-fifths and France about one-eighth.

The increase in the exports of tea from Calcutta steadily progresses, and the trade will probably soon rank second to opium. The value in 1874–75 reached nearly two millions sterling. The use of machinery in the manufacture of tea is extending.

There was a still further fall in rice exports, attributable to the scarcity. Much of the exported rice goes to Bombay, and a good deal to the Mauritius.

In exports of raw cotton there was a decrease amounting to 38 per cent.; this is to some extent attributed to the circumstance that supplies which formerly went by Calcutta are now attracted to Bombay. The whole of the produce exported from Calcutta comes from Northern and Western India, not from Bengal. The decrease in 1874–75 is entirely in exports to China, those to other countries showing rather an increase. There is, however, little prospect of improvement, as the short-stapled cotton of India cannot compete successfully with the American article. TRADE.

Cotton goods represent the value of about half of the whole imports. The import trade in English piece-goods does not make the progress that might have been expected, partly owing to the goods not being quite cheap enough, and partly owing to occasional faults in their quality during late years. It is said that the quantities imported have been too great for the demand, and that there is always a heavy stock on the market; in 1874–75 there was an increase of 1,556,798 *l.* in the value of grey cotton goods imported, and a large increase of 43 per cent. in twist and yarn. The trade is thought to have passed the point at which it could be profitably carried on with due regard to the actual requirements of the part of India which draws its supplies from Calcutta. On the other hand, in printed and coloured goods there was a decline, as there had been also in the previous year. The latter circumstance would be satisfactory if it could be traced to any extension of the native industry, but this can hardly be the case, considering the increased import of piece-goods generally. Although the use of English goods by the people of Bengal may not be increasing as fast as might be expected, Sir R. Temple considers that there is no immediate probability of effective competition springing up. The consumption, if not rapidly progressive, is yet well sustained.

The exports of raw silk fell off 32 per cent. The steady decline in this trade is attributed by some to the languishing condition of the manufacture, and by others to the obstinate demanding of too high prices in the face of competition from other countries. The imports under this head, principally from China, showed an increase.

The tobacco trade, as was stated in the last Report (p. 15), is fast rising into importance. The exports showed an increase of 93 per cent. over those of 1873-74.

Hides and skins have during recent years assumed a prominent place among articles of export. Sir R. Temple observes that the facilities which Bengal affords for cheap breeding and rearing of cattle render this trade capable of boundless expansion, but he also states that the practice of poisoning cattle for the sake of their skins is becoming common.

In the exports of oil-seeds there was an increase of 38 per cent.; in the previous year also there had been a large increase.

The export trade in saltpetre has suffered in consequence of the heavy duty imposed upon it some years ago; it has never recovered itself, although the duty was removed in 1866. Whereas in 1862–63 the value reached nearly 840,000 *l.*, in 1874–75 it was 491,338 *l.* The latter figure shows, however, a slight advance of 7 per cent. on the preceding year.

There is a fairly steady trade between Calcutta and North America. The imports average in value about 50,000 *l.*, and the exports about two millions sterling. The former consist of gums, ice, oil, and timber; and the latter of hides and skins, jute, linseed, indigo, lac, saltpetre, and india-rubber. In 1874–75 there was an increase both in exports and imports; under the latter head, chiefly in cotton goods and mineral oils.

In the total number of vessels which entered the Calcutta Port there was a slight decrease, accompanied by a slight increase in the total tonnage. In the number of steamers there was a decided increase, which was due in the first instance to importations of Government rice, but also to increasing traffic through the Suez Canal. The following figures represent the value of Calcutta trade through the Canal for three years:—

	£.
1872-73 - - - -	16,556,519
1873-74 - - - -	18,849,585
1874-75 - - - -	21,611,525

The export trade from Chittagong consists almost entirely of rice. This trade was disorganised by the famine, and showed a further falling off in CHITTAGONG.

TRADE.

1874-75. There is a steady increase in exports of tea. The Commissioner of the district reports that Chittagong is conveniently situated, with abundant and commodious anchorage, and that the trade is clearly capable of expansion. The one drawback is its comparative inaccessibility to Native craft, the remedy for which would appear to be to shorten the passage for boats from the north by opening out the Moishkhally Canal.

Orissa.

The progress of the trade of the Orissa ports has recently been rapid. New ports have been opened, existing ones improved, and inland communication extended. A trade by sea is fast springing up with other ports of India, and with foreign countries. The trade resources of Orissa are derived, not only from the deltaic tracts between the seashore and the hills, but also from extensive hill tracts, the products of which are coming more and more to the markets of the plains. During the previous year the famine in Behar and Northern Bengal gave an unusual stimulus to trade in Orissa, and there was some apprehension lest the next year's returns should exhibit a reaction. On the contrary, however, it showed a still further advance. The total value of the trade for the two years was as follows:

	1873–74.	1874–75.
	£.	£.
Imports - - - - - -	289,127	358,384
Exports - - - - - - -	300,716	439,103
TOTAL - - - £.	589,843	797,487

Rice is the most important of the exports. In consequence of a favourable harvest, the value of the exports in 1874-75 advanced from 68,249 *l.* in 1872-73, and 231,042 *l.* in 1873-74, to 311,208 *l.* There appears to be every reason for believing that the trade of Orissa is now established upon a sound and permanent basis. There was nothing abnormal in the occurrences of the year 1874-75; it was not a season of marked agricultural prosperity, and the extraordinary demand for rice for export which had been caused in the previous year by the famine in Bengal no longer existed. That under these circumstances the trade of the province should have exhibited so remarkable an expansion affords a good ground for hoping that it will continue to show a steady development in the future. It is noteworthy that the increased value of the imported goods is very large, although not so large as that of the exports.

Bengal Inland Trade.

The boat traffic on the rivers of Bengal is, for its magnitude and variety, quite unique. The number of craft of all sizes must amount to hundreds of thousands, and the navigation is remarkably skilful. This river traffic has not, as was expected, been diverted to the railways. Native merchants are apt to complain of the detention of their goods at railway stations whenever there is a press of traffic, and there seems to be a prevalent opinion that the railway rates for goods of the commoner and heavier descriptions are too high, and that the ordinary amount of rolling-stock kept up is not sufficient to meet great and emergent demands. The water route which competes with the Eastern Bengal line is 250 miles in length, as compared with 156, and yet the traffic ordinarily follows this old circuitous route, when immediate despatch is not required.

A comparison of the traffic borne on the Matabhanga (one of the Nuddea rivers) and the Eastern Bengal Railway shows that the latter attracts to itself jute, oil-seeds and tobacco, while rice, food grains and salt still prefer the river route.

About half of the whole Ganges-borne traffic consists of rice (which, coming into the Bengal markets in December and January, is sent up-country during the dry season for consumption in Behar and Benares), and oil-seeds (which, coming into the Behar and Benares markets in April and May, are sent to Calcutta in the rainy season for exportation). After rice, the next most im-

portant item of up-stream traffic is salt. The quantity sent by river is in this case, however, only half of the amount sent by rail, and the latter is steadily increasing. TRADE.

It is believed that a complete system of registration of the river traffic, as well as of that of the railways, and of some of the principal roads, has now been established. The following statement indicates the number of boats (excluding empty boats and passenger boats) that were registered on the principal river and canal routes :—

	1873.	1874.
Ganges - - - - - -	35,865	30,045
Nuddea Rivers - - - -	32,887	27,242
Calcutta Canals - - - -	101,777	77,096

Registering stations have now been established on the Brahmapootra, the Pudda, and the Megna.

Endeavours were made to establish a fair at Selbal, but they proved a failure. On the Bengal side traders were discouraged by the want of good communications, and by the ravages of a tiger; while the Garos were disappointed that slightly higher prices for goods were demanded than prevailed at the markets in the plains, and were also not ready to part with their cotton except at the same price that obtained in the plains some 25 or 30 miles off. This cotton is too coarse and too short in staple for the home market, and is believed to be entirely consumed in the neighbouring districts.

The total private trade of Madras was as follows, compared with the preceding year:— Madras.

	1873–74.	1874-75.
IMPORTS:	£.	£.
Merchandise - - - - - -	5,464,525	5,656,923
Treasure - - - - -	846,929	960,162
TOTAL IMPORTS - - - £.	6,311,454	6,617,085
EXPORTS:		
Merchandise - - - - - -	8,524,541	8,681,840
Treasure - - - - - - -	1,840,918	975,997
TOTAL EXPORTS - - - £.	10,365,459	9,657,837
TOTAL TRADE - - - £.	16,676,913	16,274,922

Exports of merchandise (not including re-exports 280,406 *l.*) exceeded imports by 2,744,512 *l.*

There was an increase of 75,628 *l.* in the value of imported paddy; but this was accompanied by a decrease in the imports of rice to about the same extent. In exports of rice there was a falling off to the extent of about 160,000 *l.*, which is accounted for by the demand from Bengal having given a special stimulus to the trade in the preceding year. There was also a decrease of about 11,000 *l.* in the exportation of indigo, owing to the fall in the price of the article in the London market. In cotton wool exported to France, Italy, and the Mediterranean ports there was a very large increase, the total value being 1,626,878 *l.*, against 1,283,399 *l.* The export of food grains to the United Kingdom and the

TRADE.

Mauritius increased, while there was a considerable decrease in that to Bengal, Bombay, and Ceylon.

Bombay.

The trade of the Port of Bombay (exclusive of Government Stores) was better than in the preceding year by 4,277,930 *l.* There thus continued to be a steady recovery from the depression of 1872–73, as will be apparent from the following comparative table (which does not include the trade with other ports within the Presidency) :—

	1871–72.	1872–73.	1873–74.	1874–75.
	£.	£.	£.	£.
IMPORTS:				
Merchandise - - -	14,819,377	14,180,678	14,860,168	15,149,228
Treasure - - - -	6,888,899	2,868,494	3,436,010	4,730,339
TOTAL IMPORTS - - £.	21,708,276	17,049,172	18,296,178	19,879,567
EXPORTS:				
Merchandise - - -	23,629,280	19,109,139	19,873,499	22,765,502
RE-EXPORTS:				
Merchandise - - -	3,221,563	3,474,379	3,461,343	3,455,902
Treasure - - - -	1,433,977	1,666,545	1,253,120	1,061,099
TOTAL EXPORTS - £.	28,284,820	24,250,063	24,587,962	27,282,503
TOTAL TRADE - - £.	49,993,096	41,299,235	42,884,140	47,162,070

In imports the increase of value was close upon 290,000 *l.*, and in exports 2,892,000 *l.* Under the former head the increase was chiefly in coffee, spices, jute, metals, machinery, &c., raw cotton, silk, twist and yarn, and petty articles of apparel. On the other hand, owing to the over-stocked state of the market, the importation of cotton piece-goods fell from the abnormal excess of 1873-74 to a more natural position; and the Bengal famine occasioned a decrease in grain and pulse. There was a large increase in exports of raw cotton, notwithstanding the continual decline in prices in the home market. The popularity of Indian cotton on the Continent is said to be increasing. The export of wheat, which in 1873-74, owing to the abolition of the export duty, advanced from 50,730 *l.* to 254,203 *l.*, showed a further advance in 1874-75 to 317,126 *l.* The Indian wheat is stated to be of very fine quality, which may account for its keeping its place in the market against the disadvantage of long transport. France took an unprecedented quantity, and an important trade is springing up with Trieste.

The private imports of treasure, compared with the previous year, were as follows :—

	1873–74.	1874–75.
	£.	£.
Gold - - - - - -	1,017,549	1,259,991
Silver - - - - - -	2,418,461	3,470,348
TOTAL - - - £.	3,436,010	4,730,339

The comments of the Local Government on the large importation of silver have been already quoted (p. 21). TRADE.

There was an increase of 251 in the number of vessels entered at the Port of Bombay, and of 82,211 tons in the aggregate tonnage. The proportion of steamers to ships was 10 to 17.

The private trade of the Sind ports amounted to 3,405,623 *l.* Of this, the value of imported merchandise was 1,604,659 *l.*, and of exported 1 771,174 *l.* The imports were better than in the previous year by 97,811 *l.*, but the exports showed a falling off of 357,792 *l.*, principally in wheat to the United Kingdom, under which head there had been in 1873-74 an advance on the average of the five preceding years of 165,216 *l.* It appears that in exports to France and the Mediterranean ports there was a considerable increase. Sind.

The trade of Aden amounted to 3,329,204 *l.* against 2,844,276 *l.* in 1873-74. The condition of this settlement is reported to be highly prosperous; it is the emporium of a large and growing traffic with Zanzibar and the interior of Arabia. Aden.

An improved system of registration, which had been worked out with great care, was introduced in the Punjab at the beginning of 1874-75. It consists in the registration, at selected posts on or near the frontiers, of all trade passing those posts to and from adjacent countries and provinces; at the same time returns are obtained of the railway traffic, of the boat trade on the Indus, and of the amount of timber floated into the province from the north. Punjab.

The weight and value of the external trade registered during 1874-75 under this system are as follows, compared with the preceding year:—

	Maunds.	£.
1873-74 - - -	6,641,549	4,512,615
1874-75 - - -	15,635,619	16,951,961

The figures for 1874-75 do not include the traffic of the Indus Steam Flotilla (valued at upwards of 2½ millions), nor several items of which statistics were not forthcoming, so that the comparison is really much more striking. It is roughly estimated that the total value of the external trade may be set down at 20 millions sterling.

The principal articles of import are "charas," opium, silk and silk manufactures, flax, metals and metal manufactures, "ghee," tobacco, wood, and European cotton cloths; and the chief articles of export are saltpetre, indigo, cotton, wool, horns, hides and leather manufactures, oil-seeds, and Indian cotton cloths. In food grains and salt there is a large import as well as export trade, but the latter is far in excess; and the exports of tea also exceed the imports.

One remarkable instance of the effect of the new system of registration is the enormous apparent rise in the imports of European cotton cloths. The largest formerly recorded were those for 1872-73, amounting to 65,587 maunds, which were valued at 735,116 *l.* In 1874-75 they reached 341,474 maunds, valued at 7,406,646 *l.*

A special statistical department was formed in the North-West Provinces towards the close of 1874-75. As a result of this measure, at a statistical conference held at Allahabad in March 1875 a scheme of frontier registration of traffic was devised, a classified list of articles for registration was compiled, registration posts were indicated, forms of registers and returns were drafted, and the general basis was laid of a system which will, it is hoped, ensure the collection of accurate and valuable information regarding land trade. North-West Provinces.

There have been curious fluctuations in the trade of the province of Oude. In 1868-69* the exports exceeded the imports by 50 lacs of rupees, and in 1869-70 by 10 lacs. In the latter year and the two following it the trade declined; in 1872-73, and again in 1873-74, it improved; but, although the improvement in 1873-74 was far greater in exports than in imports, the value of the imports exceeded that of the exports by 379,136 *l.*; and an excess of imports has prevailed more or less since 1870-71. Oude.

* These trade years are up to September in each case.

TRADE.

The principal articles of export are food grains and oil-seeds; and of import, English piece-goods, cleaned cotton, and salt.

Central Provinces.

The trade of the Central Provinces is mainly with the Western Coast. Agricultural produce is the principal staple of export, and the demand for this in 1874-75 was diminished, owing to universal good harvests.

The exports of oil-seeds showed a very large increase. There was also an increase in the quantity of raw cotton exported, but a decrease in the value. There is stated to have been a persistent decline in the value of Indian cotton of late years, following on the abundant supply of the English markets with longer-stapled cotton from America and other countries.

The imports were chiefly of salt, sugar, metals and hardware, and English piece-goods, and these had generally declined. The decrease in the last-mentioned item was very considerable, and the Government of India have directed that an inquiry should be made into its causes.

British Burma.

The value of the trade of British Burma (including the provincial trade), as compared with the preceding year, is shown in the following table:—

	1873-74.	1874-75.
SEA-BORNE TRADE.		
Imports:	£.	£.
Merchandise	4,288,535	4,718,516
Treasure	3,591,810	931,120
Total Imports	7,880,345	5,649,636
Exports:		
Merchandise	5,909,953	5,242,934
Treasure	989,576	844,883
Total Exports	6,899,529	6,087,817
TOTAL SEA-BORNE TRADE	14,779,874	11,737,453
INLAND TRADE.	£.	£.
Imports:		
Merchandise	957,729	1,097,609
Treasure	334,450	359,963
Total Imports	1,292,179	1,457,572
Exports:		
Merchandise	1,168,649	1,260,147
Treasure	128,996	210,114
Total Exports	1,297,645	1,470,261
TOTAL INLAND TRADE	2,589,824	2,927,833
TOTAL TRADE	17,369,698	14,665,286

The decrease in the value of merchandise exported was mainly caused by the delay in shipments of rice, owing to the merchants at the chief ports having agreed not to pay more than a certain rate for the grain brought to market, while the producers attempted to keep up the high prices of the previous year. There was also a falling off in hides, through a large decrease in the supplies, and in lac, consequent on the king of Burma having made the trade in that article a monopoly. But apart from these disturbing causes, the trade continued to show a satisfactory tendency to development, and there was a large increase in the exports of cotton, cutch, india-rubber, jade, spices, precious stones, timber, &c.

A comparatively large trade in india-rubber has sprung up within the last two or three years; the value of the shipments in 1873-4 was 3,195 *l.*, and in 1874-5,

12,549 *l.* The whole was drawn from Upper Burma, but it is hoped that, in course of time, the exertions of the forest and other officers in seeking out and cultivating trees which produce this gum, and which are believed to be numerous in the forests of British Burma, will enable a much larger export to be made. TRADE.

The large amount shown under imports of treasure in 1873–4 was connected with the Government purchases of rice.

In the trade with Upper Burma, the Shan States, and Western China, *vid* Bhamo, there was a considerable increase in both imports and exports. That with Upper Burma is, however, hampered by the king's monopolies. The export trade improved mainly in piece-goods, rice, salt, and raw silk; in the imports the most marked increase was in cotton, which was more than doubled in quantity, and almost trebled in value.

The square-rigged vessels which entered the four principal ports in 1874–5 numbered 1,751, being 30 less than in the preceding year, and exactly the same number as in 1872–3; the aggregate tonnage, however, as compared with 1872–3, had increased by 124,609 tons. In clearances there was a decrease both in number and tonnage, which was due to the late commencement of the rice trade; but in comparison with 1872–3, while there was a considerable decrease in numbers, there was an increase in tonnage.

The Irrawaddy Flotilla Company had a splendid fleet of nine steamers and 19 flats, and are still making additions. Besides the steamers, 8,203 boats passed up the river, and 8,819 down, with goods.

There is a remarkable development of trade in the Northern Arakan Hill Tracts. The chief imports are rice, salt, cattle, piece-goods, copper pots, &c.; and the exports, cotton, tobacco, sesamum seed, ivory, and bamboos.

The question of improving communication with Thibet has received the further consideration of the Lieutenant Governor of Bengal, who is decidedly of opinion that the best and shortest route is that over the Jeylup Pass. This pass is open all the year round, and is the lowest in the Chola range, which again is one of the lowest sections of the Himalaya. It leads into the Thibetan territory of Choombee; and the journey from the pass to Lhassa is said to be from 250 to 300 miles over a not very difficult country. The distance to Jhansu Jong, the principal mart of Eastern Thibet, is only 150 miles, and to Tashilumbo, on the great Narichoo river, where one of the best tracts of Thibet is situated, it is 200 miles. TRADE WITH THIBET.

From Darjeeling to Fedong (37 miles) the route is tolerably good, except where it crosses the Teesta, where a cane bridge has been provided for foot passengers, and a raft for the passage of laden animals, which, however, is useless in the rains. From Fedong to Jeylup (56 miles) the trade is carried on the backs of men. The construction of a suspension bridge over the Teesta has been ordered by the Bengal Government, as also the survey of the route; but the improvement of the road from Fedong to the Jeylup Pass has been deferred for the present for want of funds.

The present annual exports from Darjeeling to Thibet consist of broadcloth, flannels, chintz and cottons, American drill, tobacco, indigo, catechu, umbrellas, iron hooks and pots, brass utensils, looking glasses, goor, hookahs, &c., and amount in value to 16,455 *l.*

The exports from Sikkim to Thibet comprise millet, rice, oranges, madder, &c.; value 675 *l.*

The imports from Thibet into Sikkim and Darjeeling consist of ponies, blankets, salt, jewellery, yak's tails, China caps, musk, silk, tea, sheep; value 7,505 *l.*

The total value of all the ascertained exports from Darjeeling and Sikkim to Thibet being 17,130 *l.*, while the value of the imports amounts to 7,505 *l.*, there remains a balance of 9,625 *l.* due by Thibet. This balance is said to be paid in British rupees, which the Thibetans obtain by selling their cattle, salt, and other produce in Assam and Nepal.

There are other items of merchandise which enter the trade route at various points, and which are believed to bring up the total value of the trade to nearly 43,000 *l.*

Dhumsong has been selected as a site for an annual fair. The Government of India, in expressing their approval of this selection, observe that it is a fine open plateau, and that, if connected with the plains by a fair and easy

TRADE WITH THIBET.

road, it will doubtless, in time, become the depôt of trade between the hills and the plains. The indigo and tobacco of Rungpore are much appreciated by the Thibetans, whose intercourse with the plains is, however, restricted, owing to their dread of cholera and fever, and of the heat.

TRADE WITH EASTERN TURKESTAN.

There was an apparent large increase in the year's trade with Eastern Turkestan, but this was due to the experimental despatch of a caravan to Yarkund by an English company under the enterprising direction of Mr. Russell. Including this abnormal addition, the value of the trade passing through Leh was about 125,000 *l.* Mr. Russell has come to the conclusion that the circumstances are not favourable for direct commercial dealings by Europeans. The trade is in the hands of the Ameer, and the merchants appear to be so entirely under his influence that, unless he allows them to buy and sell, they cannot trade. Mr. Russell has proposed that, in lieu of sending caravans, wholesale depôts of European, Indian, and Central Asian goods should be established at Leh, Srinuggur, and Peshawur, and a prospectus has been issued for the formation of a new company to carry out this object. The demand for English goods, however, is apparently small, and the fact that payment has to be received by barter must limit the transactions considerably.

POVINDAH TRADE WITH CENTRAL ASIA.

The origin and nature of the Povindah trade were explained in the Progress Report for 1872-73 (p. 113). Inquiries were made during the year under review into the best means of removing existing difficulties in the way of the development of the trade passing from Ghuznee through the Gumal Pass to British India. It was found that the two great obstacles were the existence of internecine feuds between Povindah tribes, and the fact that the trade route lies for upwards of 100 miles through a country inhabited by various sections of Wuzeers.

Endeavours were made to induce the Povindah traders to settle their disputes, or, failing this, to agree to abstain from tribal warfare along the trade route; and advantage was taken of a great gathering of the representatives of the Wuzeer tribe, who assembled in unprecedented numbers to pay their respects to the Lieutenant Governor, to sound them as to their willingness to undertake the protection of the route in consideration of an annual subsidy. It is hoped that, as our relations with this tribe become more cordial, and the value of our trade with them increases, they may be induced to accept and carry out the proposals of the Government.

TRADE WITH KHORASSAN.

A great improvement was effected in the trade route between Khorassan and British territory *viâ* the Sanghar, Sori, and Sakhi Sarwar Passes; the value of the trade has risen during the past few years from nothing to 35,000 *l.*

X.

PUBLIC HEALTH AND SANITATION.

EUROPEAN ARMY.

THE statistics of sickness and mortality in the British Army in India during 1874 were most satisfactory, mainly owing to the almost complete absence of cholera. In no year of which there is any record have the troops suffered so little from this disease.

The death-rate in each Presidency was lower, in Madras very much so, than that of any previous year. The rate for the whole Army of India was 13·58 per 1,000 of strength.

NATIVE ARMY. Bengal.

What little cholera there was in the Bengal Native Army occurred mostly in the Assam regiments. There were only 55 cases of small-pox, of which 13 were fatal. Malarial fevers were the chief cause of sickness.

Madras.

In the Madras Army malarial fevers produced by far the largest amount of sickness. There was no cholera or epidemic of any kind.

Improvements have been effected in the lines of some corps, and the authorities bestow much care and attention on their conservancy.

Vaccination was very carefully and effectually attended to, and there was in consequence a very small number of cases of small-pox among the troops as compared with the civil population.

Bombay.

Only one case of cholera occurred in the Bombay Army, and that was not fatal. Of small-pox there were only a few isolated cases, with one death, showing how well the troops are protected by vaccination, as in some parts the disease prevailed extensively in the neighbourhood.

Conservancy and sanitary arrangements are reported to be good at most stations of the Presidency. The dry-earth system is very generally employed, and is found to answer well.

HEALTH OF GENERAL POPULATION. Bengal.

The late Lieutenant Governor of Bengal, Sir G. Campbell, considering the apparent hopelessness of obtaining accurate vital statistics over the enormous areas of the province, with their vast population and uneducated agencies, inaugurated a plan for perfecting the system on a smaller scale in certain small selected areas. At least one town and one country area was selected in each district. Over these areas special pains are taken to secure accuracy in registration; and although it cannot be said that the returns are yet altogether reliable, they are more so than any which had been previously furnished.

Some of these areas lie now within the new province of Assam. Those in Bengal during the year under review numbered 139, of which 76 were urban, and 63 rural, comprising a total population of 2,686,428.

The death-rate per 1,000 was as follows, compared with the previous year:—

	1873.	1874.
Towns - - - -	26·84	28·51
Rural - - - -	23·27	21·20
Combined - - - -	24·85	24·72

There was a marked improvement in the registration of birth statistics.

In Calcutta, where registration is better organised and more carefully supervised, the recorded death-rate was 28·26 per 1,000. This rate cannot however be accepted as correct, owing to the census of Calcutta not having at that time been accurately taken.

Cholera occurred in every district of Bengal, but less extensively and less severely than in 1873. The deaths during the year are given as 56,876.

Deaths from small-pox numbered 12,056. It appears to have been present in some part or other of all the districts throughout the year. It prevailed with the greatest intensity, as usual, in the hot season, April and May being the most fatal months.

HEALTH OF GENERAL POPULATION.

The registered deaths from fevers amounted to 324,156. The amount of fever, and the mortality caused by it, were much lower than in the preceding year.

Bowel complaints were the assigned cause of 31,240 deaths. On the whole, this class of disease prevailed with greater severity than in 1873. The most prominent cause is climatic influence acting on the poor population, who for the most part sleep on the ground, wear wet and insufficient clothes, and drink impure water.

Madras.

The registration of deaths in the Madras Presidency is extremely imperfect; the rate given for 1874 was 17·1 per 1,000. In the capital the mortality was returned as 36·6 per 1,000.

Deaths from cholera only amounted to 313; in Ganjam alone was the mortality serious. The disease was very irregular in its diffusion, attacking only 124 out of 55,421 villages, and exempting many groups of population. Small-pox deaths numbered 48,343; and 226,220 deaths were ascribed to fever.

Bombay.

Registration in Bombay is making steady but slow progress. The death-rate arrived at in 1874 was 17·17 per 1,000, a figure which obviously is grossly incorrect. In Bombay city it was 24·04, against 24·31 in 1873, and a mean of 25·86 during the five past years.

There were in this Presidency 63 attacks from cholera, and 37 deaths. The small-pox deaths were only 3,903. The fever deaths were stated as 183,717, being to the total deaths from all causes in the proportion of 66 per cent.

Punjab.

The accuracy of registration in most towns of the Punjab is believed by the Sanitary Commissioner to be yearly improving, and in not a few cases to be already perfectly reliable.

Only 78 deaths were registered under cholera, and in only two towns did the disease appear in at all an epidemic character.

There was a very marked decrease in the mortality from small-pox, the total deaths numbering 12,026; in 1873 they amounted to 25,699.

The number of fever deaths was 190,631, or 60 per cent. of the deaths from all causes. They have never been so few before, and the per-centage also was below the average.

North-West Provinces.

There was very little cholera in the North-West Provinces. It prevailed in the epidemic form only in Goruckpore and Bustee, which, with other eastern districts, appear to be the home of cholera in the province.

Small-pox was prevalent and very fatal in the plains. The hill districts continue to testify to the perfection of the vaccination practised there.

Fever was less prevalent than in either of the two preceding years, but 67 per cent. of the total mortality was ascribed to it.

Oude.

Registration in Oude, instead of advancing, appears to be becoming more defective every year.

Only 68 deaths were put down to cholera, against an average of 17,000 for the previous five years. The deaths from small-pox were fewer than usual by about 2,000. This apparent decrease was probably due in some measure to defective registration; it certainly was not due to the effect of vaccination, the mass of the people not being thus protected.

Assam.

In most of the districts of Assam proper, and in the Khasi Hills, the registration of deaths appears to be on a tolerably satisfactory footing.

There are 17 selected areas in the province, nine rural and eight urban. The average death-rate in the whole of these areas for 1874 was 37·3 per 1,000; in the Brahmapootra Valley it was 40·9, in the Surma Valley (Sylhet and Cachar) 31·8, and in the Khasi and Jynteah Hills 28·0.

Cholera caused more deaths than any other single disease; 16,478 fatal cases, accounting for 38 per cent. of the total mortality, were registered. This number is largely in excess of the average of the two previous years.

There were recorded 1,370 fatal cases of small-pox, against 569 in 1872. A large portion of the apparent increase is clearly due to improved registration.

Under fevers, 15,910 deaths, or 37 per cent. of the total mortality, were registered.

The great majority of fevers are of a malarious nature. The exuberant vegetation, large amount of rice cultivation, and extensive tracts of swampy and uncultivated lands, render the climate essentially malarious. HEALTH OF GENERAL POPULATION.

The ratio of deaths registered in the Central Provinces was 23·49, while the birth rate was 34·93 per 1,000. Both rates vary very considerably in different districts. The Chief Commissioner perceives some little improvement in the registration of life statistics, but urges the importance of constant attention being given to the matter. The public health was fairly good, though not equal to the preceding year. Fever and bowel complaints showed an increase. Cholera occasioned only 14 deaths. Small-pox was more virulent than for several years past, and was fatal in 17,696 cases. Central Provinces.

The birth-rate in the Hyderabad Assigned Districts is given as 36·1 per 1,000, against 27·1 in 1873, and the death-rate as 27·9, against 22·8. These ratios give evidence of improvement in registration, and it is hoped that, with continued care, better results will in time be obtained. Berar.

There was only one death from cholera. The deaths from small-pox fell from 8,326 to 1,112. The credit for this great decrease cannot be given to vaccination, but the severe epidemic of 1873 had left a very large proportion of the population as well protected against another attack as if they had been vaccinated. Fevers accounted for 26,732 deaths, as compared with 19,242 in 1873; while there was also a rise in the mortality from bowel complaints from 11,112 to 18,693.

In British Burma the recorded number of deaths fell from 41,154 in the previous year to 32,937. The decrease was mainly due to the comparative absence of cholera, from which there were 960 deaths. There was a marked diminution in fatal cases of small-pox. Fevers caused more than half the total mortality; and the deaths from bowel complaints were also numerous, and are attributed to the injudicious use of fruits and to impure water. British Burma.

The number of operations effected during 1874-5 in the Lower Provinces by circle and dispensary vaccinators, as far as returns had been received, was 959,673, against 791,634 in the preceding year. The aggregate cost was 10,207 *l.*, of which Government bore about 90 per cent. The Government of India comment with disapproval on this latter point, being of opinion that the support of vaccination should be made more a matter of self-government, as is already the case in other parts of India. VACCINATION. Bengal.

The general results are considered satisfactory as compared with former years, but they fall far short of the requirements of the population.

In the Madras Presidency there was an increase of 69,736 in the number of operations, which amounted altogether to 428,162. The average per-centage of success was 95·88. Of children under one year old 36,444 were vaccinated, showing an increase of 4,750. Madras.

Several Superintendents in this Presidency concur in opinion that nothing short of compulsion will induce the people generally to submit to the operation.

The total number of operations in Bombay was 732,624, being an increase of 80,401 on the preceding year. Bombay.

There is now no real opposition to vaccination anywhere in the Presidency, but there is shown in some communities a great deal of apathy and carelessness.

The operations in the Punjab numbered 511,425; much less opposition was met with than formerly. The Native Chiefs and the more influential people generally afforded very ready help. The municipal committees, with some exceptions, gave effective aid, while the masters of schools invariably opposed the work. Punjab.

The Sanitary Commissioner, during a tour in the districts of Umritsur, Gurdaspur, Hoshiarpur and Jullundur, had almost daily illustration of the immense progess that vaccination had made in the estimation of the people. They laughed at their former fears and suspicions, and brought their children with the greatest thankfulness to be operated on.

The number vaccinated in the North-West Provinces in 1874–5 was 494,928, 445,901 of which cases were primary, and 128,080 were those of children under North-West Provinces.

VACCINATION.

one year. The Natives dislike their children being operated upon when very young.

It is estimated that within the next two or three years the North-West Provinces will have a body of vaccinators which will admit of each town and village being visited every second or third year. So far no very perceptible impression is being made upon the mortality from small-pox, but the work is being carried on in the right direction, and a continuance of the present system will make itself felt as the establishments grow in numbers, and the people become aware of the benefits resulting from the measure.

Oude.

The number of vaccine operations in Oude fell from 30,409 to 22,019. No satisfactory cause has been assigned for this circumstance. Of the operations performed an increased proportion was successful.

Assam.

Vaccination in the new province of Assam is in quite an incipient stage, but the question of its extension is engaging the sérious attention of the Government, as small-pox is a terrible scourge there, and is specially fatal to the hill tribes living within and beyond our borders.

A'mere.

In the district of Ajmere-Mhairwarra 12,463 operations were performed. Compared with some of the Native States, British Rajpootana is stated to be backward in the matter of vaccination.

Central Provinces.

Up to the end of 1873-4 systematic efforts for protection from small-pox in the Central Provinces had been confined to the districts of Betul, Chindwara, Seonee, and Sumbulpore, and the favourable results in those districts pointed forcibly to the benefit of vaccination. In 1874 the Chief Commissioner sanctioned a scheme for the whole province, under which every Civil Surgeon is to be the Superintendent of Vaccination within his district, and there will exist a fixed establishment in each district, under a Native Superintendent, on rates of pay sufficient to attract a good class of men. Consequently on this measure, whereas in 1873-4 there were in all 103 persons employed in the work, the number in the ensuing year was 144.

To ensure the protection of the whole population, the present annual rate of vaccination must at least be doubled.

Berar.

The Resident at Hyderabad states, with reference to vaccination in the Assigned Districts, that "it is clear that more and better work has been done "during the year under review, and this is mainly due to the zeal and "judgment with which Dr. Abbott has superintended the work of his "subordinates."

The total of successful cases was 42,959, against 29,932 in 1873-4. The proportion of infants vaccinated increased from 31 to 38 per cent.

British Burma.

There were 21,154 vaccinations in British Burma (exclusive of those in dispensaries). Both the number and the success compared favourably with preceding years.

HOSPITALS AND DISPENSARIES. Bengal.

The charitable hospitals and dispensaries of the Lower Provinces numbered, at the close of 1874, 203; 23 had been added during the year, and two closed. These results, the Lieutenant Governor considers, speak favourably for the public spirit and benevolence of the Native community, by whom the necessary funds for the establishment of these new dispensaries have been for the most part provided. Of the total income Government still contributes somewhat more than one-third, not to mention the gratuitous supply of European drugs and other medical stores, the value of which in 1874 was 25,126 *l.* In the year under review there was, however, a slight improvement in the extent to which the Native subscribers came forward. The number of municipalities contributing towards the support of dispensaries also increased from 52 to 65, and the amount of their contributions ranged higher than before.

Excluding the Calcutta institutions and 102 special endemic dispensaries in Burdwan, the number of persons who received relief during the year either as indoor or outdoor patients was 660,131, of whom 23,842 belonged to the former class, and 636,289 to the latter. If all the institutions are included, the grand total is 1,840,822.

Dr. French's arrangements for provisional dispensaries in Burdwan appear

to have proved a great success. He reported on 23rd February 1875 that 29 villages had subscribed, and, with one exception, had paid their subscriptions for six months in advance. The object was to make the dispensaries self-supporting until those which are eventually retained are established on the guaranteed subscription system under one of the classes of the Government rules. In some cases Native doctors, who were good men, were appointed to the charge of the dispensaries at the express wish of the inhabitants. HOSPITALS AND DISPENSARIES.

There were during 1874-75 nine public charitable hospitals in the town of Madras, at which there attended 9,396 indoor and 63,990 outdoor patients. Madras.

The number of dispensaries in the Presidency (in addition to the above) was 122, of which 12 were opened during the year. The readiness with which the people tax themselves to maintain these institutions is noticed with approval by the Government.

Out-patients at Bombay dispensaries showed a large increase, numbering 509,266. The amount of donations and subscriptions, which was small in 1873-74, was still less in 1874-75, but in contributions from local and municipal funds there was a satisfactory advance. Bombay.

There was an increase of 16 in the Punjab dispensaries, making in all 136. The total attendance of patients exceeded that of 1873 by 68,382. This increase is the more satisfactory as the year under report was one of the healthiest ever known. There was a falling off in the subscriptions both of the Europeans and Natives, which is to be especially regretted in a time of prosperity and low prices. Punjab.

Although the year was a remarkably healthy one in the North-West Provinces, there was an increase of 1,718 in indoor, and of 4,604 in outdoor patients. The latter increase was entirely due to two new institutions. North-West Provinces.

The question of the expediency of maintaining branch dispensaries under the charge of Native doctors or hospital assistants has engaged the attention of the Local Government. Such men bring discredit on the European system of medicine, accommodating themselves to popular ideas, and throwing overboard all they have ever learnt in our schools. The result is that the abuses of the dispensaries are a constant topic in the vernacular press; that the Natives, while they fully appreciate the science of European surgery, only come to the dispensary as a last resource in medical cases; and that municipal committees are increasingly transferring their support to Native hakims. The Lieutenant Governor thinks it extremely questionable whether these establishments should be maintained for the sole cost of dispensing, through more or less ignorant men, medicines of which the use is as well known to the people as to themselves; and he has determined for the present, not to increase the number of branch dispensaries under the sole charge of hospital assistants, except on very special grounds. To the extension of "sudder" dispensaries under regularly trained Assistant Surgeons he will, however, continue to give his warm support.

In Oude four new dispensaries were opened; and the number of persons treated increased by 19,256, notwithstanding its having been one of the healthiest seasons which the province had enjoyed for several years. Oude.

The number treated in Ajmere and Mhairwarra was 27,775. The Ajmere dispensary was maintained in its usual good order, and so was that of Beawur. Ajmere.

At 77 Government institutions in the Central Provinces there was an attendance of 9,558 indoor and 334,117 outdoor patients, giving a total of persons by whom medical relief was sought of 343,675. That the people appreciate these institutions is shown by the fact that in the larger towns applications are often made for branch dispensaries to be opened. The subscriptions by Natives rose from 1,813 *l.* to 2,112 *l.* Central Provinces.

There were 17 civil dispensaries in British Burma, of which one was opened during the year. The Burman population are very slow in accommodating themselves to our system of medical treatment; in surgery cases, however, they believe implicitly in the skill of Government doctors. British Burma.

A new medical school was opened at Patna in June 1874, and arrangements were made for opening another at Dacca in June 1875. There were altogether 1,185 students in Bengal training for the medical profession. MEDICAL SCHOOLS. Bengal.

MEDICAL SCHOOLS. Madras.

The question of increasing the teaching staff of the Madras Medical College was considered during the year, the supply of medical men from the college having been hitherto short of the requirements of the country. The establishment of provincial medical schools was also in contemplation.

In consideration of a large proportion of the Indian female population being debarred by social custom from receiving skilled medical aid, measures were instituted during the year for the education of female students at the Medical College. In the case of various subjects which could not be conveniently studied in conjunction with male students, separate classes are held. Three female students had availed themselves of the privilege.

Punjab.

The Principal of the Lahore Medical School says that most of the students are doing very well, and that there is every reason to anticipate much good from the plan of sending young men for qualification as private practitioners in their several districts. The Inspector-General of Dispensaries hopes that it will not be very long before these men will entirely replace the hakims. He does not believe that much good comes from the latter practising medicine, although they are for the most part a well-behaved and intelligent class, and he thinks the best thing that can be done with them is to employ them for the diffusion of vaccination.

Oude.

The Bulrampur Medical School, which was opened in April 1873, and is endowed by the Maharajah of Bulrampur, is reported to have made a very good start, and to be in a fair way to become very popular. All the professors worked with zeal, and took great pains in teaching their various classes. The school had its full complement of students in the course of 1874. Among the candidates for admission were two Brahmans, of whom one had been formerly dismissed for insubordination, and the other had resigned on account of caste prejudices. These were afterwards reported to be among the best students. The aversion which was at first shown to dissection is being gradually overcome. All the instruction is given in English.

Central Provinces.

The general working and progress of the Nagpore School of Medicine during 1874-5 is reported to have been satisfactory, but the character and qualifications of the students, more particularly of the new admissions, do not appear to have been good. It is stated that some progress has been made towards carrying out the objects of the school, especially the object of supplying hospital assistants for Government service. Through the liberality of a few Native gentlemen, the principal was enabled to offer 21 prizes for learning and general proficiency, which were carried off by twelve students.

SANITATION. Bengal.

There was a very great advancement in the sanitation of municipal towns in Bengal. Dacca, Patna, Durbhunga, and Chittagong are noticed as special instances of this improvement, and in many other stations the relief works undertaken during the famine have been of a kind likely to have a good effect on the public health.

The famine is said to have largely extended, in a most practical manner, a knowledge of what is needed and how it can be done.

The underground drainage scheme which has been carried out in Calcutta has produced the most marked sanitary improvement, which appears to be well worth the great cost which the works have involved.

Madras.

The new water-supply from the Red Hill-Lake is much appreciated by the residents in Madras, who attribute to it their comparative immunity from cholera in 1875.

Very satisfactory accounts have been received of the arrangements at Madras fairs and festivals during 1874 and 1875. Latrines were erected, sweepers entertained, cattle kept at a distance, drinking water guarded from defilement, and medicines and temporary hospital accommodation provided. The effects of these measures were in many instances very marked.

Bombay.

Increasing attention is given to conservancy in the Bombay head-quarter stations and municipalities, and a great deal has been done towards supplying wholesome drinking water.

The question of the provision of a system of drainage and sewerage in the capital is still in abeyance, but has been occupying much serious attention.

SANITATION.

Not much advance was made with the great works of drainage and water-supply in the Punjab which have been for a long time under consideration. The injury to the public health which results from the continuance of the impure water-supply at Delhi was urged on the Government of India, and it was hoped that a loan would soon be granted, so that the work might be taken in hand and vigorously pushed on to completion. Works of minor but still very great importance, such as paving, guttering, latrine construction, and surface cleansing, were carried on. Punjab.

Municipal committees in the North-West Provinces continued to give attention to works of sanitary improvement. North-West Provinces.

The project for the drainage of the City of Saharunpur, which comprises 25 separate works, aggregating a cost of 11,164 *l.*, was nearly completed.

The reports from Oude do not exhibit much progress. A great drawback in the municipalities is their extreme poverty. As a rule, the streets of all municipal towns are well swept, the latrines kept clean, and nightsoil removed; but the absence of drainage and of urinaries, conjoined with the practice of throwing ashes and rubbish into pits near the houses, has caused a deposit of salt and nitre in the soil in every old town, frequently in sufficient quantity to be extracted as articles of commerce; in consequence of which the water in most of the wells within the densely populated area is so contaminated as to be saline to the taste. Oude.

Some sanitary progress is reported in the towns of the Central Provinces. With a few exceptions streets have been opened out, surface drains constructed, and conservancy fairly attended to. The existing sources of water-supply are improved and preserved from pollution, but, except in Raipore, no municipality has in hand any comprehensive scheme for providing its population with a pure and safe supply of water. The great obstacle to bringing the villages into a better state of cleanliness is the practice of keeping the cattle at night within the village precincts, but reform in this respect will be most difficult to bring about. Improvement of the water-supply of villages would be more easy of attainment, but even in this matter the apathy and prejudices of the people impede progress. The fact of the intimate connection between cholera and pollution of the water-supply is, however, beginning to be recognised by the more intelligent classes. Central Provinces.

The poverty of the municipalities in Berar is a serious bar to sanitary improvements, but the matter is not neglected either in municipal or other towns. The establishments, after the cleansing operations of the day are over, are employed in various improvements, and in villages the people are stirred up to maintain cleanliness. A great hindrance to sanitation is the want of free spaces around villages; and this is an evil not very easy to remedy without infringing on the settlement rights of the proprietors. Berar.

Nothing important was effected in British Burma in the way of sanitary progress, but, as all the principal towns have now been brought under the control of municipal committees, it is hoped that there will be more to record under this head in future. British Burma.

XI.

EMIGRATION.

EMIGRATION. To the Colonies.

THE general results of the working of the Emigration Department in Bengal during 1874–75, as contrasted with those of the previous year, are shown in the following table:—

	1873–74.	1874–75.
Number of emigrants admitted to the depôts	29,267	23,393
Absconded	4,362	1,178
Rejected		1,560
Died in depôt	336	79
Death-rate	1·14	0·33
Despatched to colonies	24,569	20,230
Died on ship-board	775	285
Death-rate	3·15	1·4
Number of emigrants who retuned from the colonies	2,481	3,534

There was thus a large decrease, amounting to 5,874 persons, in the number of intending emigrants admitted to the depôts, followed by a decrease of 1,881 in the number of persons rejected, absconding, or dying in depôt, and resulting in a net decrease of 4,339 in the number of persons actually despatched to the colonies. The decrease in mortality, both in depôt and on board ship, is satisfactory, as is also the large increase in the number of emigrants who returned to India with their earnings. Although, however, the general death-rate was small and considerably below the average of the previous year, on particular voyages it was lamentably high. In such cases the circumstances formed the subject of careful inquiry, and it was found that there had been no want of proper care and attention on the part of the responsible officers of Government in the selection and examination of the emigrants prior to their shipment. No satisfactory conclusions have been arrived at as to the causes of the outbreaks of sickness, further than that the coolies, before they are driven to emigrate, are in many cases much reduced by want, and that their constitutions are little fitted to withstand the hardships of the voyage to the colonies. Every precaution is taken by observation in depôt to provide against infection being carried on board the emigrant ships, yet instances are frequently occurring in which a disease in a latent form must have eluded detection. An emigration season has been prescribed for the various British colonies west of the Cape of Good Hope, such as will give the greatest probability of the voyages made being fair ones, and in addition it has lately been determined to provide that the bulk of the women and children, who are the most frequent victims of disease on the voyage, shall be shipped in the late months of the season, when the weather is fairest.

There was a large decrease in the shipments to Demerara, and a total cessation of emigration to Dutch and French Guiana. The requirements of the two latter colonies appear to have been fully met in previous years. In both the health of labourers has been far from satisfactory, and it was determined on this account to suspend emigration to Surinam for the present. There was a renewal of emigration to Natal, which is considered satisfactory, as the coolies have good prospects there of bettering themselves.

Although there was a large decrease in emigration as compared with 1873–74, the total number of emigrants despatched to the colonies exceeded that of 1872–73 by 3,059 persons.

Of the total number of 20,230 emigrants despatched to the colonies, 9,688 were natives of the North-West Provinces, 6,406 of Behar, 2,781 of Oude, and 1,041 only of Bengal proper and Orissa. The number elsewhere recruited (in the Punjab, Central India, and the Native States) amounted to 314 only.

There were 1,053 more return emigrants than in the previous year. The ships which conveyed the latter were found to be generally in a satisfactory condition. The coolies made no serious complaints as to their treatment either in the colonies or on the passage. EMIGRATION.

Not less than 500 persons re-emigrated during 1874-75; and besides these, many others, it is said, were willing to emigrate again to Trinidad, but were rejected in consequence of the enfeebled condition to which they had been reduced after their return to India.

Emigration from Madras is almost entirely confined to coolies proceeding to Mauritius, of whom there were 1,186 during the year under report. There arrived 1,231 return emigrants from the same colony, and 172 from Natal. Among the former only six deaths occurred, and two among the latter.

The Report of the Lieutenant Governor of Bengal for 1874-75 gives some results of inquiries that have been instituted in pursuance of a Despatch from the Secretary of State (dated 24th March 1875), which dwelt on the importance of encouraging emigration to the colonies, and raised the question whether the Indian Government might not assume a more direct and responsible position in respect to this matter. The emigration agents have pointed out what they consider the difficulties in the way of emigration; some of the measures complained of were initiated or concurred in by the colonies themselves. The following rules, which are now objected to, the Lieutenant Governor is strongly of opinion should not be relaxed, viz.: (1) the modified regulations now in force for the survey of emigrant ships; (2) that in each ship there shall be a fixed proportion of women; (3) that a refund of fees shall not be allowed in the case of deserting emigrants; (4) that full railway fare to their homes shall be charged in respect of rejected applicants. On the following points the Lieutenant Governor held out hopes to the emigration agents that the inconveniences referred to would be obviated as far as possible: (1) delay in registering intending emigrants; (2) the charge of an uniform registration fee irrespective of age. With regard to the pecuniary loss stated to be sustained by the colonies through fraud on the part of those registering themselves, the Lieutenant Governor recommended that a substantial penalty be distinctly attached to the offence of any emigrant withdrawing, without due cause, from his engagement.

The Lieutenant Governor fully agreed with the view expressed in the above Despatch that, to enable the Government to carry out its proposed policy, it should possess more complete information and guarantees than it at present does as to the treatment of emigrants, and that, with this object, the colonial authorities should receive and pay for a number of qualified agents, to be appointed by the Government of India, who would furnish the Government with the fullest information, and also that all emigrants should be classified before their departure, so that specific wages might be guaranteed to each one.

Various measures were adopted during 1874 for the well-being of the labourers in the tea districts. To the Tea Districts.

The important experiment was adopted of opening the over-land route by Rajmehal and Doobree to the immigrants into Assam proper, a second emigration depôt being opened at the latter place, and the coolies being embarked from thence. The journey through Western Bengal, and the detention at Calcutta, where the coolies had often to wait for some days before departure, had, it was said, most disastrous consequences. It was during that journey and detention that the seeds of cholera were sown.

Another measure, which was sanctioned late in the year, was the provision of additional clothing and shelter to labourers during the winter months on their voyage up the Brahmapootra. This was suggested by a serious outbreak of cholera being attributed to cold from insufficient clothing.

Complaints had from time to time been received of the ignorance and inefficiency of Native doctors sent in charge of coolies; they were represented to be men picked up for the occasion, and paid by the trip. A regular staff of Europeans is now organised for this service, who, though not at all legally, are all much better qualified than the Native doctors.

In the famine year there was a great increase in the number of labourers despatched to the tea districts, and as the effects of the scarcity disappeared the

EMIGRATION.

flow of emigration somewhat abated. The latter circumstance is attributed, not to any decrease in the demand, but to a growing difficulty in finding persons willing to emigrate. The recruiters have considerable competition to encounter in the large demands from the colonies, and from British Burma, and terms will probably have to be raised to ensure the necessary supply.

The number of labourers imported during 1874 was 22,288; and at the end of the year there remained altogether 70,992 imported labourers, being 12,295 more than at its commencement.

The following table shows the various territories from which the labourers were supplied: —

	Males.	Females.
Bengal - - - - - -	5,883	3,268
Chota Nagpore - - - - -	4,272	3,397
North-West Provinces - - - -	2,201	1,241
Madras - - - - - -	19	7
	12,375	9,913
	22,288.	

These statistics are not to be implicitly relied on, but they may be depended upon so far as showing that the sources of immigration are as much the thinly-peopled districts of Chota Nagpore and Sonthalia as the over-populated districts of the Ganges valley and delta.

The total number of deaths during the year was 2,540. The death-rate per 1,000 was as follows in the several districts:—

Kamroop - - - -	93·7
Darrang - - - -	36·9
Nowgong - - - -	80·4
Seebsaugor - - -	41·3
Luckimpore - - -	45·8
Sylhet - - - -	20·2
Cachar - - - -	29·3
Total death-rate - - -	36·5

With the exception of Sylhet, the rates of mortality in all the districts compare unfavourably with those of the previous year. In Nowgong the rate is nearly double. The Inspector says the deaths were principally among new arrivals, and were mostly due to cholera and other non-preventable causes. The year was one in which the public health in Nowgong was far from good; cholera and small-pox were prevalent in an epidemic form, and, as coolies are generally careless about their health and what they eat and drink, the deaths among them were consequently more than usual. The Inspector for Upper Assam remarks: "The mortality during the past year has been higher than "that of 1873 in both the districts of Seebsaugor and Luckimpore, due in a great "measure to cholera, which was very prevalent in many of the gardens. The "rainy season was also exceptionally unhealthy, owing to the frequent and long-"continued floods. I am often told, in making inquiries on the estate as to high "death-rate, that it is caused by the state in which the coolies arrive on the "gardens, ill and debilitated from the voyage. This is quite true, as I have "often seen myself, but it is difficult to find a remedy."

The mortality in Kamroop would appear by the above figures to have been disproportionately high, but the number of labourers on which the per-centage is based was comparatively very small.

EMIGRATION.

The number of desertions was 2,955. It appears that desertions have been steadily increasing during the last few years. Its most fruitful cause is said to be the system of giving bonuses. Few of those who desert settle in the province or return to their homes, but they are tempted to other plantations by the offer of a bonus, employers finding this a cheaper plan than importing labourers on their own account.

Although there is no great disproportion of sexes, yet the birth-rate is only 2 per cent. No cause for this has been assigned, and it is regarded with some concern, as the welfare of the tea industry must depend to a great extent on the fecundity of the imported labourers.

To British Burma.

The system of State emigration from Bengal to British Burma was continued throughout the year, 7,397 persons having been despatched through this agency. The influx of this number of labourers led the British Burma Administration to regard the scheme as, on the whole, a success, but the Lieutenant Governor of Bengal was disappointed with the result of the efforts made to induce emigration of the surplus population, even from the most densely populated part of Behar, where the effects of the famine were much felt. The scheme was about to be merged in a much broader one contemplated by the "British Burma Labour Bill," under consideration of the Legislative Council.

Most of the immigrants were employed on the works of the Irrawaddy Valley (State) Railway, many were privately engaged as labourers and servants, and others found profitable work in cultivating and reaping the rice crops.

There is also a migration to British Burma from the Telugu districts of Madras, but the movement is voluntary, and unaided by the Government.

To Ceylon.

The greater part of the labour required on the coffee estates of Ceylon is furnished from Southern India. The number of coolies proceeding to Ceylon every year averages 70,660, and about 54,000 return annually. The arrangement works very advantageously on both sides; the planters can always obtain as much labour as they want, while the high wages received by the coolies enable them to save, and ultimately to take the position of small farmers in their own villages. The Ceylon Government undertakes to see that while they remain in the island they are properly housed, fed, and provided with medical attendance.

XII.

EDUCATION.

STATE OF EDUCATION.—Bengal.

THE policy of Sir G. Campbell in regard to the extension of primary education has been steadily maintained by his successor. Notwithstanding the very great addition to the number of aided primary schools in the two preceding years, there was a still further increase in 1874 75 of about 1,000 schools.

The aim has been, not only to augment the quantity of this instruction, but also to improve its quality without making it too high for the purpose in view.

As it appeared that the education of the children of the poorer classes of Europeans and East Indians was being neglected, Sir R. Temple invited all those interested in the matter to co-operate in either enlarging the sphere of existing institutions or establishing new ones, promising them at the same time assistance from Government to the full extent authorised by the rules. These proposals had not, so far, evoked any marked effort.

The great majority of Bengal youths resort to two professions, the public service and the law, with the consequence that many cannot obtain employment, to their great discontent. With a view to open out other lines of employment, the Government is endeavouring to establish technical and industrial schools of a superior kind in many places. Funds are being raised among the Natives themselves for two such institutions, one at Calcutta, and one at or near Patna. The Civil Engineering branch at the Presidency College has not been very successful, owing apparently to its not being in sufficiently close relations with the Public Works Department of the Local Government. The School of Art at Calcutta is attracting some pupils. Sir R. Temple states: "There is a "great want of even the most rudimentary training in art among the Native "youth generally. The art culture, once indigenous in the country, has, for "the most part, died out in the course of ages, and nothing new has been "substituted."

Sir R. Temple discerns a healthy ambition among the Natives of Bengal to raise themselves by education; an increasing pride finds expression among them in respect to the achievements of the Hindoo mind; in fact, there is "a "sort of intellectual restlessness and mental fermentation" going on, which it is most important should be guided into a right direction. The number of young men who visit England to complete their education, or to study for a profession, is gradually increasing.

Almost every Bengalee youth who can afford the means aspires to English education as one of the main objects of his life; and there is a desire for learning English even among the poorer classes.

A result of education has been the formation all over the country of societies, having for their objects chiefly educational and social matters. There were at the close of the period under review about 60 of them, numbering about 2,000 members in all. The British Indian Association is one of the oldest and best known among them.

One satisfactory result of the visit of the Prince of Wales has been that the wealthier Natives of all classes are raising subscriptions to commemorate the event by founding educational institutions.

Madras.

The schools in Madras in connection with the Educational Department increased during the year by 936, and the number of scholars by 24,917. The number of lower-class schools was 8,306, showing an increase of 881, accompanied by an increased attendance of 22,106.

The Government have felt it necessary to intimate their wish that a larger portion of municipal funds should be devoted to education, and have specially enjoined on municipalities the duty of directing elementary education.

Bombay.

The number of schools in Bombay connected in any way with Government increased by 181, and the scholars by 10,125; the numbers being 4,334 and 238,686 respectively.

The returns for the Northern Division are reported to have been affected by the unusually large number of marriages which occurred during the year. In

Sind, too, the increase was small, owing to the disastrous floods, which for several months emptied many of the schools and seriously affected others in the district of Shikarpur. STATE OF EDUCATION.

Education made continued satisfactory progress in the Punjab. The number of Government and aided institutions increased during the year by 100, and the number of scholars by 9,876. The increase occurred principally in primary schools. Punjab.

There are good reports of the working of the Lahore and Delhi Colleges. From the latter eight out of nine candidates passed the First Arts' Examination of the Calcutta University.

The development of education in the frontier district of Hazara has been very striking. In 1872 there were only three ill-attended schools in the district, and the district authorities considered there was no desire for education, and that it would be long before anything like progress would be made. There are now 25 schools, attended by 1,098 scholars, among whom are the sons of Atta Mahomed Khan and other local Chiefs, and some children from independent territory across the border. This remarkable advance is ascribed by the Deputy Commissioner partly to the fact that the settlement operations, now closed, while they have largely increased the value of property in land, have awakened the people to a sense of the practical value of instruction, and partly to the influence of the district committee and the extension of the municipal system. A similar change in the feelings of the people towards education is reported from the district of Peshawur.

Notwithstanding the above encouraging features, the fact remains that of children of a school-going age in the Punjab about 70 per cent. are receiving no instruction.

The number of Government boys' schools in the North-West Provinces increased from 4,017 to 4,184, and scholars from 155,819 to 159,419. The "hulkabundee" schools (the lowest class of Government schools, which afford free elementary instruction to the village poor) increased by 161, and the pupils by 3,346. North-West Provinces.

Government schools in Oude increased by 47, while private schools decreased by two. There were 1,059 village schools, of which all except five were supported and managed by the State. The course of study for these schools was revised by a committee, and it is hoped that the effect will be to make the schools more popular both with teachers and pupils. Oude.

Of 94 candidates presented for the Calcutta Entrance Examination, 45·7 per cent. passed, which is above the average, as, of the *total* number of candidates, the proportion passed was 43 per cent. The result was chiefly due to the success of the Government schools.

In the northern Garo Hills education is entirely conducted by the American missionaries. Of 20 village schools five were closed during the year, but the falling off will, it is hoped, be only temporary. The future success of the schools mainly depends on an adequate supply of suitable teachers. In the southern part of the district, where education is supervised by the Deputy Commissioner, there was a fair average attendance of boys. Only the most elementary instruction is given. It was hoped that during the ensuing year several new schools would be opened in the interior. Assam.

The year in Ajmere was, on the whole, marked by satisfactory progress in educational matters. The number of pupils increased; the experiment of a branch school in the city of Ajmere (the funds for which were provided by the municipal committee for one year) was attended with some success; while night schools established in Mhairwarra to accommodate the agricultural community also proved successful. Ajmere.

Although the number of schools in the Central Provinces decreased by 30, the average daily attendance increased by 4,051. This is regarded by the Chief Commissioner as a very healthy sign, for in India the value of each boy's labour, consequent on the poverty of the people, is always a serious drawback Central Provinces.

STATE OF EDUCATION.

to the progress of education, while in this particular year the prevalence of small-pox in several districts further interfered with attendance. The eastern districts, especially Sumbulpore, have the largest number of scholars. Here it is believed that education has taken a firm hold on the people; much liberality is shown in the support given to the schools, and as this support has now been given for a considerable time, it is hoped that it is permanent.

The statistics of village schools, which are really the most important of all, are very favourable. The educational officers, in their inspection, found great internal improvements, better classification, and schoolmasters impressed with a more lively sense of their duties and responsibility.

Berar.

In Berar special attention has been directed to the diffusion of primary instruction among the lower classes of the community. Six middle-class schools were reduced to the lower grade, and 22 lower-class schools were added to the number previously existing, making the total number 380. There is a large number of indigenous schools in the province, which, beyond keeping the boys out of mischief, are useless, the teachers being wholly illiterate. The village schoolmaster is, however, generally a very popular institution, and the policy of the Government is to take advantage of this element of popularity wherever it exists by helping the schools with grants of books and of money, and to encourage the teachers and their pupils by friendly advice and visits from the Inspectors of the Educational Department.

Other measures of the year were the institution of 95 exhibitions, to enable the most promising pupils in the village schools to push on their education in the middle-class school of the neighbouring town; the employment of a restricted number of extra assistant masters in schools in which the average attendance exceeds the teaching power of the permanent staff; and a revision of the rates of school fees, so as to place primary instruction within the reach of the poorest classes. To render the Government schools popular, and to ensure regularity in attendance, instructions were issued for the formation of local school committees in all towns and villages in which schools are established.

Coorg.

Education made satisfactory progress in Coorg. The number of schools was increased by the establishment of three Government and seven private institutions.

A Coorg student at the Bangalore High School left the country to complete his education in England.

British Burma.

In the last Report (p. 23) an account was given of the remarkable progress effected in British Burma in matters of education, and especially of the successful attempts to bring into co-operation with the Government system a large number of the indigenous schools of the country. This year, again, was one of continued advancement. Considerable additions were made to the inspecting staff, on which the success of the whole system depends. Government schools increased from 21 to 24; aided missionary schools from 24 to 27; and other schools aided in one way or another by Government from 936 to 1,143. The number of children whose education is in some manner under Government supervision was 33,027, which, however, was only a little over 1·2 per cent. of the population. But this proportion is no indication of the extent to which education is carried on, as there are numerous monastic schools throughout the country which are unconnected with Government, and many of which firmly resent Government interference. From the indigenous lay schools which have been brought under the inspecting agency very gratifying results are obtained, and the educational authorities have been informed that they must look in this direction for the development of a sound system of primary instruction. The great difficulty at present is the want of qualified teachers, but various measures are being carried out with a view to supply this want.

There is reported to be an earnest desire among the Burman youths to acquire a knowledge, however superficial, of English.

UNIVERSITIES. Calcutta.

At the Calcutta University Entrance Examination of 1874 the system of setting papers in English without reference to text-books was introduced. There

had been in 1873 an abnormally large accession of candidates, owing to an impression that the difficulty of passing future examinations would be greatly enhanced by the abolition of text-books in English; and the result of that examination showed that a large number of candidates had got admission to it who were not fit to appear. In 1874 the number of candidates fell from 2,544 to 2,254, but of this number 966, or 43 per cent., were successful, against a per-centage of 33 only in the previous year. Fifty-six candidates registered for examination did not present themselves, and of the 1,232 who failed, 789 were rejected in mathematics, and 724 in English. The number of candidates from Bengal was 1,717, or 76 per cent. of the whole. Universities.

Having passed the University Extrance Examination, students are admissible to colleges and high schools affiliated to the university in arts, in which they enter upon a course of study extending over two years. The subjects of this course are prescribed by the university, and form the standard of the examination known as the First Examination in Arts. After passing this examination, students enter upon a further course, extending over two years, the subjects of which are also prescribed by the university, and form the standard of the B.A. degree examination.

The number of students at the colleges is, however, small. The average number of graduates for the three years 1873 to 1875 was 232, and the number of graduates from the founding of the university in 1857 to 1875, a period of 19 years, is only 2,307. In general terms the fact is that not more than 12, perhaps 15, per cent. of those who have matriculated after examination ever proceed to take a degree. It is clear that the passing of the Entrance Examination has been too often regarded as being an end gained instead of being, what it ought to be, a step towards an end, namely, the taking of a degree.

Madras.

The Principal of the Bangalore High School, complaining of a similar abuse of the University Entrance Examination, makes the following remarks:—

"Many resort to the bad practice of seeking employment as soon as the Entrance "Examination has been passed, and yet striving to pass more examinations. "This is detrimental to themselves, and lowers the character of the institution "to which they belong. Many a poor student must, however, adopt this course "until Native liberality provides for such cases. But for founders and bene-"factors in our English seats of learning, the world would have lost much both "in literature and science."

The number of pupils who presented themselves for the Matriculation Examination at the Madras University was 1,911, against 1,704 in the previous year, and the number of those who pased was 784, against 626. The ratio of passed to examined candidates rose from 36·7 to 41 per cent; and in the number of first-class men there was an increase from 62 to 120. At the First Examination in Arts 183 passed, against 125 in 1873-74; and here also there was a satisfactory increase in the number of those who passed in the first class.

At the Presidency College the Sanscrit class was reported to be in a satisfactory condition, and a new chair was formed during the year, that of Professor of Physical Science.

The Free Church Mission Institution is the largest college in Southern India, and has besides a school department of nearly 800 boys. This college is very successful in its working. Of its 153 students in 1874-75, 38 passed the Matriculation Examination, 24 the First Arts Examination, and five took the B.A. degree.

The Doveton Protestant College had only 24 students, but of these more than half succeeded in passing the university examinations.

Bombay.

At the Matriculation Examination for the University of Bombay there was an increase of 90 candidates, but a decrease of 93 in those who passed.

In 1873-74 more than one-third of the candidates passed, while in the year under report the number of successful candidates was reduced to less than one-fourth of the number presented. The falling off is most marked among candidates privately educated. In the higher examinations the results were satisfactory, but here too the proportion of successful candidates was slightly lower than in the previous year. In 1873-74 the total number of candidates in these

UNIVERSITIES.

was 297, of whom 121 passed; while in the year of review there were 392 candidates, of whom 150 passed.

Punjab University College.

The Punjab University College made good progress. It held during the year examinations for High Proficiency and Proficiency in Arts, for Proficiency in Law, Medicine, Arabic, Sanskrit and Persian; it expended 1,148 *l.* in scholarships held at various educational institutions, 569 *l.* on fellowships, and 1,660 *l.* on the Oriental College and on the translation of English standard works into the vernacular.

For the Entrance Examination held in 1874, 115 candidates presented themselves, of whom 59 passed.

The Oriental College maintained by the Punjab University College has been greatly improved in efficiency. Instruction is given in Sanskrit, Arabic, and Persian, whilst mathematics, history, and geography are taught through the medium of Urdu and Hindi. Recently classes have been opened for instruction in the English language and literature. A school department is attached to the college. Out of 24 candidates, eight passed the Entrance Examination of the Punjab University College, and eight candidates for the Proficiency in Arts Examination all failed. To the Arabic Examination, however, the Oriental College contributed 14 out of the 16 successful candidates, to the Sanskrit Examination 12 out of 29, and to the Persian Examination 21 out of 36.

MAHOMEDAN EDUCATION. Bengal.

Of a total of 436,098 pupils in Government and aided institutions in Bengal Mahomedans numbered 87,917. Of these, 87,087 were at institutions other than colleges for general and special instruction. The number in the lower primary schools was 74,644, being 86 per cent. of the whole number at school.

There was an increase of 24 per cent. on the previous year in the number of Mahomedans learning English; the per-centage was slightly below .6, about half that for Hindoos.

The number of Mahomedan students in colleges for general education increased during the year from 36 to 53, and in institutions giving instruction in law, medicine, and engineering from 79 to 115; while, owing to the opening of the Rajshahye and Chittagong madrassas during the year, the students attending madrassas increased from 314 to 657.

As the students at the Calcutta Madrassa show a desire to learn English, in addition to Arabic and Persian, the principal the considering a scheme for encouraging the study of English conjointly with was other languages.

Bombay.

The schools for Mahomedans in the Central Division of the Bombay Presidency do not present encouraging results, and the number of pupils shows a considerable falling off from the previous year. In the Northern Division, on the other hand, the Urdu schools increased from 31 to 38, and the results showed a marked improvement. In the Southern Division there are Mussulman masters and assistants in some of the ordinary Canarese schools, and many Mussulman pupils learning with the Hindoos.

Punjab.

An indication of the growing appreciation of education by the Mahomedans in the Punjab is the circumstance that of 1,026 boys attending the Lahore District School and its branches 554 were of that religion.

Oude.

The Mahomedans in Oude are, in proportion to their numbers, far more ready than Hindoos to accept the offer of State education. This fact is apparent in English as well as vernacular schools. If, however, the low caste Hindoos are excluded from the comparison, this superiority of the Mahomedans no longer appears.

FEMALE EDUCATION. Bengal.

Female education in Bengal, though not making as rapid advances as might be desired, is yet marked by steady progress. One of the most promising features of the new "patshala" system is the extension of primary female instruction in the mixed schools. Zenana education is believed to be making decided progress among the higher classes of society, but it is conducted quite privately, and it is doubtful whether it goes beyond reading and writing. The attempts to establish normal schools for female teachers have scarcely succeeded.

During the year under review Municipalities and Local Fund Boards in Madras were relieved from all charges on account of elementary girls' schools, which were all made Government institutions. FEMALE EDUCATION. Madras.

The total number of girls' schools in this Presidency increased from 237 to 269, and the number of pupils from 11,193 to 11,906. The total number of girls under instruction in any schools connected with Government rose from 17,113 to 19,582. Among this number Hindoo girls increased by 780, while the number of Mahomedan girls more than doubled itself.

In Bombay there was a net decrease in girls' schools of 12, and in pupils of 150. Except in the Poona sub-division, the schools are generally promising. Bombay.

The number of Government female schools in the Punjab rose from 101 to 128, and of pupils from 2,599 to 3,318. The aided female schools, however, decreased in number from 223 to 218, and the scholars from 6,444 to 6,284. Punjab.

The aided schools comprise 53 mission schools, two sets of zenana classes, and 163 schools which are more or less under local officers and in some cases Native committees.

Female education in British Burma progresses satisfactorily, principally at missionary institutions. The social freedom which Burmese women enjoy gives them a great advantage in this respect. But there is a difficulty in obtaining thoroughly suitable teachers, combining a knowledge of English and of the vernacular. British Burma.

The Bengalee literature chiefly excels in fiction, but an aptitude is also shown for history, and many books of this character have been prepared, which are sound and good as far as they go. There are also ethical and didactic works of some merit; and rudimentary books on science, derived from European sources, are beginning to be written. LITERATURE AND THE PRESS. Bengal.

A steady improvement is reported in the Native press. The circulation of the 20 principal papers is believed to amount to about 20,000 copies. The general tone is decidedly loyal and favourable to British rule. The confidence felt in the good intentions of the Government, and the gratitude of the Natives for external security, religious freedom, material prosperity, and English education are frequently expressed with the greatest warmth and impressiveness. At the same time, there is often much matter of a controversial character; a disposition is sometimes manifested to find fault with everything that is done or omitted, and an increasing jealousy is evinced regarding the bearing of British people towards the Natives.

The Madras School Book and Vernacular Literature Society receives from Government a yearly grant of 200 *l.* The Society's report for the year is stated to contain interesting details of the efforts made to supply the masses with literature which, while instructive or amusing, is pervaded at the same time by a healthy moral tone. Madras.

Of 701 books registered in Bombay during 1874 (of which some, however, were printed before that year), 625 were written wholly or partly in one of the oriental languages, such as the vernaculars of India, and the sacred languages of the indigenous and naturalized races. The European languages were represented by 74 English and by two Portuguese works. Bombay.

The grants for the encouragement of literature and the presentation of books amounted to 1,166 *l.*, or little more than half the amount of the previous year.

There were 55 vernacular newspapers in the Presidency.

On a review by the North-West Provinces Government of the working of the Notification of 1868 offering rewards for the encouragement of vernacular compositions, it was found that from August 1868 to March 1874 no less than 1,164 specimens of authorship had been sent in, of which 125 had been rewarded. The Government concurred in the conclusion arrived at by the Director of Public Instruction that the time had arrived for gradually raising the standard by demanding more original thought, more research, and greater attention to con- North-West Provinces.

LITERATURE AND THE PRESS.

sistency and practical usefulness; and it was determined in future to reject all works which were not deemed deserving of a prize of at least 30 *l.*

British Burma.

A periodical journal in the vernacular, entitled the "Education Gazette," began to be issued during the year by the Education Department in British Burma. Among its objects are the dissemination of general information, and the awakening of an interest in literature. The report of the editor at the end of the first six months was promising, upwards of 1,000 names being on the subscription list.

The "Rangoon Literary Society," which is aided by a small grant from Government, was reported to be in a very flourishing condition.

XIII.

NATIVE STATES.

NATIVE STATES. Munnipore.

In retaliation for a daring raid upon Munnipore territory by the Moombee Sooties, an expedition was despatched from that State against the offending tribe, which, however, appears to have left matters much as they were before.

On the northern boundary of the State the Angami Nagas gave much trouble by a succession of raids, which led to the loss of many lives and much valuable property. It was intended to put an end to this state of affairs by strong repressive measures against the villages implicated.

The Maharajah and two of his sons met the Viceroy and the Chief Commissioner of Assam in Cachar in August 1874.

The usual apathy was shown in this State in regard to vaccination, and the ratio of successful operations was very low.

In former reports complaints had been made of the failure on the part of the Maharajah to keep the road to the British frontier in the state of repair required of him by treaty, but in the year under review the obligation was faithfully carried out.

Trade was in a languishing state, that with Burma having been prohibited by the latter State, and that with Bengal having declined owing to the oppressive measures adopted in Munnipore. The latter circumstance, by inducing former traders to have recourse to robbery in order to fill the pockets of the authorities, has led to great and widespread discontent.

Hill Tipperah.

The Rajah of Hill Tipperah, owing to expensive litigation in which he had become involved, and to disputes with his farmers and ryots, was much straitened in funds, and consequently means were not available for initiating expensive improvements in the administration, or for supporting and carrying on some of the measures which have been already originated. But notwithstanding his embarrassments, the Rajah has always been ready to accept advice, and is said by the Political Agent to have on every occasion done his best to carry out recommendations made to him. The present Rajah is the first one who has been honoured with an interview by the Viceroy, and it is said that he is not likely to forget the occurrence. He had never seen a steamer, or anything worth the name of a river, and his delight as he was carried rapidly along the Megna river in a splendid barge was unmistakable.

He has introduced a marked improvement in the administration of the jails in his territory, and has established a new dispensary. He has afforded his co-operation in putting down any attempt to carry on an illicit traffic in arms through his dominions. The fact also that a new sub-division has been opened out in the southern part of the State would seem to indicate a desire on his part to improve the administration of justice.

Little progress is reported in the matter of education. With an estimated population in the plains and in the hills of nearly 75,000 souls, there were but 103 boys undergoing instruction at the two existing schools.

Cooch Behar.

The administration of Cooch Behar was carried on with very satisfactory results, and the people appeared to be in a prosperous condition. The fields were fully cultivated from end to end of the territory, and there was a remarkable increase in the production of jute and tobacco. There is a small but effective Public Works Department, with a good Native officer of practical training at the head of it. Communication by means of roads and bridges has been greatly extended.

The establishment of a Department of Education is producing good results. The number of schools and scholars rapidly increases; the proportion being educated was, however, only one per cent. of the population. There is a good library of English literature at the capital of the State. Money for a Sanscrit scholarship has been given by a Native gentleman.

Sikkim.

The Lieutenant Governor of Bengal paid a satisfactory visit during the year to the Sikkim State.

NATIVE STATES.

The present Maharajah is a boy about 16 years of age; he appears to be not wanting in intelligence, but is very retiring in manner. His mother is a native of Thibet. After the death of the late Maharajah, she married the Changzed or Minister of Sikkim, who may, in consequence of that position and his marriage with her, be considered the regent, and is *de facto* ruler of the State.

The young Maharajah expressed his gratitude for the kindness shown him hitherto by the British Government, and his hope that it would be continued; and the Maharanee also represented very strongly that the management of the State and the guardianship of the young Maharajah had devolved upon her, who, being a woman, was ill fitted for the task, and that she relied on the protection of the British Government to accomplish it successfully. The Lieutenant Governor assured the Maharajah and his mother of the continued good will and friendship of the Government, and promised them his advice and support in any difficulty in which they might be involved.

Tributary Mehals.

Of the Tributary Estates in Chota Nagpore, 9 are under the Bengal Administration, and 15 under that of the Central Provinces.

In the former it is reported that an abundant harvest, added to the fact that the public health was good throughout the year, rendered the people happy and contented.

The returns of crime were somewhat heavier than in the previous year, the number of offences of all kinds reported having been 406 against 375. The increase was chiefly under the more serious heads of crime, while petty thefts and the like decreased. Considering, however, the great area of the country concerned, the amount of crime reported was comparatively small. The proportion of convictions was not quite so good as in 1873-74, but was not, on the whole, indicative of a want of discretion in the commitment of cases.

Colonel Dalton, the late Commissioner, states that during the whole period of his incumbency the Chiefs have generally distinguished themselves by a just administration of the territory under their rule, a benevolent policy towards their people, and thorough loyalty to the British Government.

With regard to the Mehals which are in relation with the Central Provinces, the Chief Commissioner observes that it has rarely been necessary to exercise any active interference in their affairs. The two estates of Khairagurh and Patna were transferred to British management in 1870 and 1871 respectively, and the condition of both has greatly improved in consequence. The former used to be a refuge for organised bands of robbers, who infested the road that runs from Nagpore to Raipore; now these bands have been broken up, and life and property are apparently as safe as in British territory. A considerable trade has been fostered, and the people enjoy the fruits of their own industry. In Patna, also, trade has greatly increased, agriculture has been extended, there is a good attendance at the schools, and the people are contented and prosperous.

In the year under report it became necessary to interfere with the Rajah of Sakti, who not only was tyrannical towards his own subjects, but was aggressive towards his neighbours, and even encroached on British territory to cut down crops and carry them off. Repeated remonstrances were only met with arrogance and obstinacy. The estate has now been taken under direct management; those of his subjects whom he has ruined or grossly injured will, as far as is possible, be compensated, and it is hoped that peace and quiet will soon replace anarchy and misrule.

The Lieutenant Governor of Bengal received in durbar the Rajahs of the 17 Cuttack Mehals of Orissa, and presented to them the patents signed by the Viceroy confirming them and their heirs in their titles and status. Satisfactory assurances were received of the peaceful condition of those hill states.

Rampoor. Gurhwal.

The only two States connected with the North-West Provinces are Rampoor and Gurhwal, of which no accounts have been received for the year under report.

Cashmere.

The depressed condition of the Cashmere shawl trade has induced the Maharajah to turn his attention to measures for extending the culture and manufacture of silk. Some progress in this direction has already been made; machines have been imported from Calcutta, and silk-reeling commenced; but

NATIVE STATES.

the silk, though of good quality, does not command a high price in Europe, owing to its inferior reeling, and, to remedy this defect, an official has been sent to Europe, in order to acquire a knowledge of the silk business of Italy and France. Hop-growing has also been experimentally introduced.

With the object of providing shelter for travellers and traders, the Maharajah has constructed a *serai* at Srinuggur for Yarkund merchants; and he has given much attention to the improvement of communications.

Measures have been taken for the translation of English standard works for purposes of education.

In recognition of the assistance rendered by the Maharajah to the Yarkund Mission, and of the hospitality shown to the Lieutenant Governor during his tour in 1873, it was arranged to present him with a steam launch, which was constructed in England in pieces sufficiently small to admit of their transport over the mountainous roads and passes into the valley of Cashmere. The launch arrived at Lahore at the close of the year, was put together at Srinuggur, under the superintendence of an English mechanic, and was successfully launched in August, being named by the Maharajah "Victoria," in honour of the Queen.

In April 1875 the Maharajah proceeded to Simla to pay his respects to the Viceroy, and, after a stay of nearly a fortnight, returned highly gratified with the honour and cordiality of his reception.

Punjab Hill States.

There are 26 petty Hill States in relation with the Punjab, in regard to which nothing of importance is recorded for the year. Of Chamba (pop. 130,000) it is said that the people were contented, and that there was not a single case of violent crime.

Puttiala.*

The Maharajah of Puttiala was visited by the Viceroy in his own territory. In this State education has made considerable advance under the superintendence of Ram Chandra, the eminent mathematician; two youths educated at the Puttiala school have passed the Entrance Examination of the Calcutta University, and the foundations of a college for high education have been laid.

Kuppoorthulla.

The administration of Kuppoorthulla had in the preceding year, owing to the Maharajah's illness, been entrusted to a Native Council of Regency, but their dissensions made it apparent that nothing but the control of a British officer would secure tranquillity and good government. Since the appointment of Mr. Lepel Griffin as Superintendent, all has gone on well. The form of government has remained unchanged, but intrigue and faction have been checked, and vigour infused into every department of the administration.

Bhawulpore.

The Bhawulpore State continued temporarily under British management. Although the area of the land under cultivation was greatly reduced owing to the failure of the inundation of 1873-74, the income of 1874-75 increased from 181,094 *l.* to 187,203 *l.*, owing to the superior quality of the produce, the extended sale of fuel to the Indus Valley Railway, and increased receipts from other sources. Good progress was made in the construction of irrigation works; 44 branch canals, varying from 5 to 15 miles in length, 185 distributary channels, and 239 wells were made at the expense of the State. There was a diminution of crime, the police were successful, and the civil and criminal courts gave satisfaction; and a favourable report has been received of the progress of the young Nawab in education.

Khyrpoor.

Khyrpoor is a State situated in Sind, and was the only portion of that territory left independent after the battle of Meeanee. No event of importance occurred there during 1874-75.

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* The following constitute the group of Sikh Feudatory States:—

Puttiala.	Mallairkotlah.
Jheend.	Furreedkote.
Nabha.	Kuppoorthulla.
Kalsia.	

NATIVE STATES. Rajpootana States.*

In three of the Rajpootana States the Chiefs were minors, viz., Oodeypore, Ulwur, and Dholepore. Their education was carefully superintended; in the two first cases trustworthy Native guardians were appointed.

In four or five of the States it was in contemplation to make a survey and settlement of the land, but the accomplishment of the scheme would have to depend on the machinery and the funds available.

A measure of reform instituted in Marwar and Jeypore was the consolidation of Customs collections in substitution for the numerous local dues levied on traders. This measure had the entire approval of the Government of India, but it seemed to be somewhat doubtful whether it would effectually accomplish its object.

The means of information regarding crime are very defective, and considerable advantage arises to criminals from the diverse jurisdictions. The Courts of Vakeels were devised as a remedy for these obstacles to justice, but these are stated to be becoming more and more juries for award of compensation rather than criminal courts, as they seldom punish offenders, and the system is open to much abuse. The high roads are, however, now reported to be in a fairly safe condition. The policy of inducing marauding bands of outlaws to surrender and settle down to industrial pursuits on receiving pardon for the past has been very successful in the Marwar-Serohi territories.

There have during recent years been great improvements in the Rajpootana jails; those at Ulwur, Kotah, and Jeypore are especially well reported on.

The supply of food and water having been good during the year, the people suffered little from illness. Small-pox was mild, and cholera insignificant. Western Rajpootana is considered to be a particularly healthy country.

Oodeypore.

The Maharana Sumbhoo Sing, of Oodeypore, who was much beloved and respected by his subjects, died in October 1874, at the early age of 27. The succession was determined in favour of the young cousin of the deceased, Sujjun Sing; but the uncle, Sohun Sing, maintained claims of his own, and refused to recognise his nephew.

A decrease of crime in this State during 1874–75 was reported; and the administration of civil justice was efficient and gave general satisfaction.

Vaccination was vigorously prosecuted. The Political Agent induced the durbar to engage in the sanitation of the city, which had been somewhat neglected, with renewed energy. An abundant supply of good water now exists throughout the valley of Oodeypore.

The condition of the Bheels in the Meywar Hill Tracts is thought to be improving slowly. They are in every way more prosperous in this part of the country than in Malwa, which is probably due to their being engaged in cultivation to a much greater extent, and to food being cheap and plentiful. Their passion for drink, however, continues.

Crime was diminishing, and traffic consequently was increasing on the main road from Oodeypore to Guzerat.

A reformer, Soorjee, has for some years past been at work among his countrymen on the Meywar-Guzerat frontier. He preaches worship of one God, peace and good-will. His followers take an oath to abstain from all crimes and offences,

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* The following is a list of the Rajpootana States:—

Meywar Agency:
- Oodeypore.
- Doongerpore.
- Banswarra.
- Pertabghur.

Jeypore Agency:
- Jeypore.
- Kishenghur.

Marwar Agency:
- Jodhpore.
- Jeysulmere.

Harrowtee and Tonk Agency
- Boondee.
- Kotah.

Harrowtee and Tonk Agency—*continued.*
- Jhallawar.
- Tonk.
- Shahpoora.

Eastern States Agency:
- Bhurtpore.
- Kerowlee.

Dholepore Agency:
- Dholepore.

Ulwur Agency:
- Ulwur.

Shoojanghur Agency
- Bikaneer.

Serohi Agency:
- Serohi.

from spirituous liquor, and from causing death to any living thing. They bind themselves to live by the produce of the soil and to bathe before eating. Soorjee has now a following of upwards of 1,000 "bhuguts," or believers, and three disciples, Gurus, ordained by himself to preach and convert. NATIVE STATES.

In Jeypore education was making the most encouraging progress, heinous crime was reported to have materially diminished, trade was active and prosperous, and there was a liberal expenditure on public works. Several important irrigation works were in hand. Sanitary reform, however, appears to be limited to the capital. The Maharajah liberally supports the medical institutions. Although small-pox prevailed, less vaccination work was done than in the previous year. Jeypore.

The Maharajah Jeswunt Sing, of Jodhpore, continued his vigorous administration. He exerted himself earnestly to put down violent crime, and attempted financial reforms. He intended to introduce some system by which the enormous number of liquor shops in Jodhpore shall be reduced, and the quality of liquor sold be improved. Jodhpore.

A thakoor who tortured to death some unfortunate women, on the suspicion that they had killed his son by witchcraft, was sentenced to imprisonment for life. For years past the thakoors of Marwar have considered themselves as supreme on their estates, and have cared little or nothing for the authority of the durbar; and the punishment awarded in this case is stated to have produced a good effect.

The Kotah State was being ably administered by the Nawab Faiz Ali Khan, who had great difficulties to contend with, owing to previous misgovernment and confusion, and to the want of trustworthy officials. Kotah.

In Bhurtpore, the working of the civil and criminal courts appears to have been satisfactory, and education made progress. Bhurtpore.

The education of the young Chief of Dholepore was progressing. The example does good, and nearly all the Sirdars were beginning to have their children educated at their own houses; but, generally, education is not much appreciated by the people. Dholepore.

The death of the Maharajah of Ulwur without leaving any lineal or adopted heir caused some difficulty in the succession, but it was decided in favour of a boy of 16, called Mungul Sing. The thakoor Lukdeer Sing, who was another candidate, refused to accept the choice, and he and his party held together as a faction, and showed plainly that they only wanted strength and opportunity to go much further. The estates of all the refractory thakoors were attached by the Ulwur durbar, and Lukdeer Sing was ordered to leave the territory and reside at Ajmere, an order which he obeyed reluctantly. Ulwur.

The effect of exacting school fees from non-agriculturists (who do not contribute to the one per cent. educational fund) was to reduce the attendance of that class at school from 3,403 to 3,145, while the number of agriculturists increased from 937 to 1,383.

The attendance at the dispensaries increased. The vaccination returns showed considerable progress; except among the thakoors, opposition had ceased.

The condition of the people in Serohi appears to be very backward; although several schools have been established at the instance of the Political Superintendent, they do not care to accept the advantage offered. To measures of sanitation the opposition is such that the people have threatened to vacate a village if obliged to attend to any sanitary rules. The belief in witches is universal. Serohi.

There has, however, been a marked decrease of crime in Serohi.

The reports received of the several States of Central India are in most cases favourable. In the States generally there was a slight decrease of crime as Central India States.*

* The Central India States may be classified as follows:—

Gwalior.
Indore.
Bhopal.
Rewah.
Dhar.
Dewas.
Bhopal Agency (not including Bhopal)—9 States.
Western Malwa Agency—4 States.
Bhowapur (or Bheel) Agency (not including Dhar)—11 States.
Deputy Bheel Agency—6 States.
Goona Agency—7 States.
Bundelcund Agency—30 States.
Baghelcund Agency (not including Rewah)—5 States.
Guaranteed Grassia Chiefs—16 States.

NATIVE STATES.

compared with 1873–74, and especially in the number of dacoities. The diminution of serious crime was very marked in the Goona Agency, considering the predatory habits which are natural to the people, and the facilities afforded by a wild hilly country.

In school attendance there was considerable improvement. The Residency school had in it many young Chiefs and thakoors, both Rajpoots and Bheels. The Rutlam school was in a particularly flourishing condition. The Native States pay all the charges for the schools maintained in their territories.

Gwalior.

A Camp of Exercise was held by Scindia during the year, at which, the Political Officer remarks, the troops were well drilled, and the artillery steady and efficient.

The durbar used its utmost endeavours to put down the gangs of dacoits which infested its own and neighbouring territories.

Besides the college in the Lushkur, there were 93 district schools in the Gwalior State, affording education to nearly 4,000 children.

Indore.

Sir Madava Row, whose services were transferred to Baroda, was succeeded as Minister of the Indore State by his relative Ragonath Rao.

The revenue of this State showed a slight increase, reaching 500,000 *l.* The land revenue collected was 338,600 *l.*, nearly 8,000 *l.* more than in the previous year.

The expenditure on education (2,800 *l.*) was small in proportion to that on other objects. The Maharajah, however, sanctioned an increase of 1,200 *l.*, which is not shown in the accounts for the year.

The services of an English engineer (Mr. Carey) having been secured by the durbar, considerable advance has been made in public works. The streets of the capital are now drained and lighted, roads are metalled and kept in order, and measures are taken for preserving cleanliness.

The dispensary, under the supervision of an English physician, was largely attended, and is stated to be a real blessing to the inhabitants. The Maharajah has given 1,000 *l.* for the building of a new dispensary.

A new jail on the Government standard plan was being built outside the city, and in the meantime both the present jails and the treatment of the prisoners have been improved. The Minister states: "The internal economy "of the jails, and food and clothing of the prisoners, are now just the same as "in the jails of British India. The prisoners are very healthy; not more than "3 per cent. of them are, as a rule, on the sick list."

Bhopal.

The event of the year in Bhopal was the marriage of the only daughter and heiress of the ruling Begum to Mian Ahmed Ali Khan.

The waterworks were in full operation, and proved a great boon to the inhabitants of the city.

A survey carried out in this State resulted in an extraordinary increase in the classification of the best kind of soil, and the rates for each kind were also enhanced.

Rewah.

The administration of the Rewah State having gradually drifted from bad to worse, the Maharajah at length asked that the management of his territory might be undertaken by the Political Agent. The work had been commenced, but promised to be a very serious and complicated one, the accounts having been brought into great confusion after many years of extravagance and mismanagement.

Dhar.

A very gratifying account is given of the Dhar State, and of the Rajah's courtesy and liberality on all hands. The revenue for the year was reported to be 68,000 *l.* The road connecting Dhar with the railway at Mhow was approaching completion.

Baroda.

A full account of recent events in the Baroda State having been laid before Parliament, it will not be necessary to do more here than briefly recapitulate the leading points.

Mulhar Rao succeeded his brother in 1870. In March 1873, Colonel Phayre was appointed British Resident, and he soon brought to notice the serious maladministration of the State by the Gaekwar. In the winter of the same year, a Commission was appointed by the Government of India for the purpose of in-

vestigating and reporting upon the general condition of the State; this Commission concluded their proceedings in February 1874, and their report substantiated to a considerable extent the charges against the Gaekwar. A period of 18 months was thereupon allowed to him for effecting the necessary reforms in his administration, and every assistance was offered him for that purpose. Not long after, Colonel Phayre was replaced by Sir Lewis Pelly, and while this arrangement was in progress, information was received of the attempt to poison Colonel Phayre, an attempt which that officer himself firmly believed to have been instigated by the Gaekwar. It was then determined by the Government of India to arrest the Gaekwar, and to assume the administration of the State pending the result of an inquiry. The Government felt that a public inquiry was more advisable than one conducted in private, which would have given occasion for suspicion and mistrust. The action of the Government being taken, not upon legal, but upon political grounds, the Commission was not constituted a judicial tribunal; its function was to report to the Government of India, with whom the decision would ultimately rest. **Native States.**

The Commission commenced their proceedings on the 23rd February, and closed them on the 31st March 1875. On the grave imputation of instigating the attempt to poison, Sir R. Couch, Sir R. Meade, and Mr. Melvill, found the Gaekwar guilty; the Maharajah of Jeypore considered him not guilty, while Maharajah Scindia and Sir Dinkur Rao thought the charge was not proved.

The Government of India carefully considered the reports and evidence, and, after due consultation with Her Majesty's Government as to the Gaekwar's general maladministration, issued a proclamation on the 19th April 1875 by which Mulhar Rao was formally deposed.

In the administration of Kutch there had been, in the preceding year, much confusion and many abuses, resulting from the want of any responsible Minister at the head of the State. A satisfactory selection has since been made by the Rao of an officer with some experience of Government service; and he will be assisted by a deputy who is also favourably spoken of. **Kutch.**

During 1874-5 general progress was retarded by the Rao's disputes with his Bhayad or kinsmen of the blood, and with the neighbouring Chiefs of Kattywar. The finances were not in a flourishing position, and trade was depressed. There was, however, a diminution of serious crime. Out of an expenditure of 26,554 *l.* on public works, nearly 20,000 *l.* went to the construction of a new palace. On the other hand, a lighthouse was erected, the light of which is visible at a distance of 20 miles; and some other useful works were carried out, or in contemplation.

The dispensaries at Bhuj and Mandvi made progress. The prevalence of small-pox induced the Rao to adopt special measures for its prevention; 3,034 vaccinations were performed, or 558 more than in the previous year.

Five new schools were opened during the year, and the building for a Mahomedan school was completed. The Alfred High School succeeded in matriculating one boy. The Government Inspector, who examined several schools, expressed himself pleased with the acquirements of the Rao's son and daughter.

Progress in Kattywar is stated to have been very marked, both in administration and in development of material resources. The condition of the lower classes appears to be generally prosperous and comfortable, and the attitude of the Chiefs towards the British Government is, without exception, loyal and grateful. On the Governor meeting the chiefs in Durbar, they addressed him as follows:— **Kattywar.***

"Your Excellency,—The country, as you will yourself see, is in a state of "peace; justice is improved, factories are rising, roads and bridges are being "built, schools are multiplying. While we frankly own that the great change "since the days of our forefathers has been made under, and is due to, the "beneficent counsels of the British Government, yet we claim what credit

* The province of Kattywar consists of 86 separate talukas, of which 23 are of the four chief classes.

NATIVE STATES. " is due to Chiefs who have ever adopted those counsels with alacrity, and have " admitted their wisdom, even where their adoption was hard to reconcile with " the habits and associations of the past."

In his reply, the Governor fully accorded them the credit they claimed, particularly in regard to the establishment of the Rajasthanik Court (for the equitable decision of disputes between the Chiefs and their kinsmen), whereby they had yielded part of their most cherished prerogative. He also alluded with satisfaction to the practice of completing the education of young nobles by foreign travel, to the great attention paid to the suppression of crime and violence, and to the general development of national prosperity.

A centralised police was checking lawless tribes and mercenaries, and tracking outlaws. The Chiefs have agreed to subscribe a fund, amounting to 6,315 *l.* yearly, for ten years, to be spent on the great trunk roads, so far as they lie in the poorer districts, while the greater Chiefs have themselves undertaken the parts within their own boundaries. Works on these lines were in active progress, and several large bridges were being built.

Much improvement might be effected in education if some of the Chiefs would take a more lively interest in it. The practice of early marriages materially interferes with the course of study.

Five schools were added during the year, making a total of 399; but the number of scholars on the rolls showed a falling off.

A praiseworthy effort has been made by the Raj Saheb of Drangadra to educate the dangerous and predatory classes of his subjects by opening special schools for them.

Vaccination was largely resorted to; 77,311 persons were operated on, being 976 in excess of the previous year.

Kattywar has a flourishing trade, principally in exports of raw cotton. Those from Bhownuggur alone were valued at 1,313,796 *l.* The other exports are wool, common food grains, ghee, hides, oil, and bullion; and the imports (the value of which is much less than that of the exports) are cotton cloths, timber, metals, rice, cocoa-nuts, oil-seeds, and groceries. The excellent sand and lime stones of the province are very little exported, and the fine granite of Girnar is hardly known to its owners.

Cambay. There was no noteworthy occurrence in the State of Cambay beyond the fact that the Nawab liberally promised an annual subscription of 50 *l.* for the support of the schools.

Pahlunpore.* In Pahlunpore the reform of the judicial administration occupied attention, together with the reclamation of large tracts of waste land, the cultivation of cotton, and other local improvements.

The financial supervision exercised by Government over the affairs of the Pahlunpore State since 1817 was withdrawn in August 1874, and, a liquidation of the Dewan's debts having been arranged, the whole management was made over to him.

The petty States have now nearly all been ranged under the "thanadar" system, which superseded the defective police arrangements formerly existing. The measure at first occasioned much discontent and opposition. All the Chiefs, however, with the exception of the Tharad thakoors, after personal persuasion, consented to co-operate in the reforms so urgently needed, and to bear the expense of their introduction, and the irritation had in a great measure subsided. The whole of the primary civil and criminal business of the administration will pass through the hands of the thanadars. This beneficial change has been followed by the reorganisation or reform of the village police of the several estates in which the system has been established.

Mahee Kanta.† The Maharajah of Edur being a minor, his territory is under direct management. He is being privately educated. The State debts were considerably reduced. There was a fair expenditure on public works. Vaccination was steadily on the increase.

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* This Agency comprises 11 States, with other petty jurisdictions.

† In Mahee Kanta there are 12 larger and 47 smaller States; and in Rewa Kanta, 6 larger and 56 smaller ones.

A school has been opened for the special benefit of Bheel children on the frontier, the Maharanee having consented that the first cost and the pay of the master should be defrayed from the revenues of the State. With this exception no new schools were opened in the State, but those in existence were kept up with efficiency. NATIVE STATES.

In the Agency generally there was a very decided increase of reported crime, which is attributed partly to recent police reforms instituted by the Political Agent, and partly to the great number of liquor stills in the province.

The intercourse of the Political Agent with the Chiefs of Rewa Kanta was satisfactory. Rewa Kanta.*

The results of the first year's working of the new system of police are very gratifying. Its origin was as follows. The wildness of some parts of Rewa Kanta, its proximity to Meywar, and the absence of any systematic protection of life and property so favoured the commission and impunity of crime as to attract in 1872 the attention of the Bombay Government. It was necessary not only to check the incursions of Bheels from Meywar, who in former times thought nothing of attacking a border village, setting it on fire, and harrying all the cattle, but also to overawe the Meywar villages, which claimed independence of all authority, to keep the roads free from marauders, and to protect the peaceable section of the inhabitants. To secure these objects a federal police was organised from the materials at hand, which the Political Agent describes as having been without subordination or discipline, the men being accustomed to live upon the country, to absent themselves from their posts, and to screen offenders for a consideration. This underpaid, over-worked, and badly-equipped body of men is now reported in a creditable state of efficiency, with a total strength of 63 officers and 323 men on foot, while in the mounted branch there are one officer and 47 men. The total area over which their operations extend is 1,595 square miles. Of 880 persons arrested in the year under report 70·34 per cent. were convicted. Property was stolen to the estimated value of 1,560 *l.*, of which 29·30 per cent. was recovered. Cattle-lifting is still a favourite pursuit amongst the Bheels; the carelessness with which animals are kept by their owners, both by day and by night, and the apathy with which their loss is regarded, favour the offence and hinder detection, whilst a great proportion of these thefts, being perpetrated by Bheels from Meywar and Wagud, have to be dealt with by the unsatisfactory system of international courts.

Measures are in progress to extend the benefit of the new police to the whole northern frontier. The States of Rajpeepla, Chota Oodeypoor, and Balasinore are organising special police services, but the Political Agent fears that, with the laxity prevalent in Native States, a policeman will never be employed exclusively on police duties, but will be expected to perform any service, however foreign to his proper office.

The vaccination department was carefully superintended; the number of operations was 14,078, against 13,600 in the previous year.

The number of schools was 65 (of which four were girls' schools), with an average attendance of 2,737. Only one English class was open, with an average attendance of nine pupils. The Mahomedan population of the towns appear to take more interest in education than formerly. The Urdu school at Lunawara has been re-opened by local effort, and another has been commenced in Baria, where the Mahomedans have shown their earnestness by erecting a school-room.

The Surat Agency comprises three States. One of them (Sucheen) is under attachment. The other two (Dhurrumpoor and Bansda) are reported to be in a backward condition. Surat.

In the small State of Narakote there was an increase in the number of crimes, in regard to which, however, the Political Agent observes that the people, though simple and amenable to authority, are not free from the lax ideas as to minor injuries to person and property which are natural to half-civilised tribes, and that the increase of offences is probably an indication rather of increasing Narakote.

* *See* last note on previous page.

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strictness of police and magisterial supervision than of any deterioration in the habits of the people.

Khandesh.*

The inhabitants of the Dangs in Khandesh are principally notorious for drunkenness, and this is necessarily accompanied by lawlessness and crime, though, in the absence of any supervision, little of what goes on ever comes to light. Petty cases are disposed of by the Chiefs; the ordinary punishment is believed to be that of fine only, and the rapacity of the Chiefs doubtless leads to great abuses.

Peint.

Deplorable accounts are received of the general condition of the people in the Peint State. They were poverty-stricken, and terribly afflicted by fever. They have not capital or energy to cultivate the hill-sides, otherwise than by putting in seed on ashes, which is seldom done in the same place during two consecutive seasons. Even fertile valleys, of which there are very few, are not cultivated as they might be. The result of the settlement, however, was an increase in the land revenue of 113 *l.*, chiefly on account of increased cultivation. An endeavour was being made by the Collector to improve the water-supply.

Jowhar.

Education was entirely ignored in the Jowhar State until within the last seven or eight years, and the bulk of the population consists of wild tribes. Considering these facts, satisfactory progress has been made. The young Rajah prosecutes his studies at Poona.

The forests of this State are said to be nearly worked out, and as they furnish the main source of revenue, their conservation is a matter of great importance.

Junjeera.

The administration of Junjeera was most satisfactory, and the progress in all departments is considered by the Government of India to reflect great credit on Mr. Larcom, the Assistant Political Agent, to whose exertions the favourable results are due. The Nawab was applying himself to the redres of abuses, although he had not freed himself entirely from unprincipled favourites. The success attending Mr. Larcom's efforts to establish superior schools is noted with special commendation. There were eight of such schools, and the gross income on account of them was 583 *l.*, against 77 *l.* in the preceding year, while the number of pupils was 517, against 373. These schools are becoming very popular, especially among the Mahomedans, and no difficulty is experienced in obtaining suitable school-houses as gifts, or rent-free, from wealthy residents in the larger towns.

Two vaccinators performed 4,309 operations, as compared with 2,983 in the previous year.

The Political Agent, contrasting the present condition of things with that of 15 years ago, when no European life was safe in the country, observes that, on a tour through the Hubsan, he found a healthy, well-fed, contented, and orderly population, among whom serious crime is almost unknown, an efficient and respected police, good criminal administration, vaccination general, schools being established everywhere, postal and steam communication to important places, and Bombay traders engaging fearlessly in commerce with the inhabitants.

Sattara.†

The Rajah of Akulkote is a minor. In this petty State the police force was reported to be in much need of improvement, the revenue was not satisfactory, cultivation was in a backward state, and the educational returns showed retrogression, while the inefficiency of the teachers was complained of.

Kolhapore.

In Kolhapore, good progress was made in all departments. There was a satisfactory decrease in crime. The expenditure on public works amounted to 36,710 *l.*, and included a high school, which can accommodate about 400 students. Several important road bridges were being constructed; and a water-supply for the capital had received Government sanction.

The total area of culturable land in Kolhapore proper was 428,417 acres, of which 334,650 were under cultivation during 1873–74, showing an increase of 4,141 acres. The area of land under cotton cultivation was 12,072 acres, or about $3\frac{1}{2}$ per cent. of the whole.

There were 9,507 patients treated at the civil hospital and dispensary. In vaccinations there was a decrease of 892, the number reported being 17,620.

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* This territory comprises 23 petty States.

† This includes, besides Akulkote, 5 petty States.

NATIVE STATES.

The progress of education continued satisfactory. Of 29 students sent up for the Matriculation Examination 12 passed, and one of them obtained a Sanscris scholarship. Great pains are taken with the education of the young Rajah.

Sawunt Waree.

In Sawunt Waree, while there was a considerable increase in the number of persons brought to trial, there was not a proportionate increase in the number of convictions.

There was an increase of 71 in the number of scholars on the rolls, yet the average daily attendance was less than in the preceding year. Education is stated to have been in a languishing condition in this State for some few years past. There appears to be no strong desire for it among the people, although the children themselves are painstaking and full of intelligence and emulation. Measures were being taken to bring the State schools under closer supervision.

The young Chief, and other youths belonging to his family, were making satisfactory progress in their education at Kolhapore.

A considerable trade in cotton and grain passes through Sawunt Waree from the Deccan to the sea-port of Vingorla. For local consumption, wheat, bájri, gram, and other grains of the upper country are imported; whilst cocoa and betel-nuts are sent above the ghâts in return. Statistics are not available, but it is stated that since the construction of the Amboli Ghât road in 1869-70 the traffic has largely increased.

The vaccinations numbered 7,003, against 5,181 in 1873-74. There were 32 deaths from small-pox.

Southern Mahratta States.

The affairs of the Sangli State were conducted by a British Administrator, and the Chief's antagonism to this arrangement led to much trouble. Since the appointment of a new Minister, however, the Chief has been more reasonable. There has been an improvement in the general administration; the liabilities of the State have been reduced; a sum of 3,495 *l.* was disbursed during the year on works of public utility; and the progress of education was satisfactory.

There are five other jaghiredars in the Southern Mahratta country, two of which are divided between elder and junior branches of the ruling families. The administration of most of those States is favourably reported on.

Savanoor.

Former Nawabs of Savanoor had done nothing to meet the requirements of the public in regard to communications, wells, &c.; but this want is now being gradually supplied. During 1874-75 no less than 585 *l.* was spent on the construction and repair of roads, and 906 *l.* on improving the water-supply. Education also progressed satisfactorily.

Hyderabad.

No account has been received for 1874-5 of affairs in the territory under the direct government of the Nizam.

Mysore.

There were in Mysore during the year under report 77 municipalities, of which 12 were worked by committees. Advantage is taken of any opportunities which may offer to entrust the more advanced municipalities with extended powers.

The total receipts of the municipalities were 52,285 *l.*, of which 15,792 *l.* was derived from octroi.

The year shows a general diminution of serious crime in Mysore, except under the head of dacoities, which rose from 34 to 39. Of the latter, 21 cases occurred in the Nagar Division, in regard to which the Judicial Commissioner remarks: "The circumstances of the Nagar Division appear to afford peculiar facilities for "the perpetration of this description of crime. The wild and sparsely populated "taluks of the Malnad, with isolated houses at great distances from each other, "and numbers of reputed criminals and nomadic tribes moving through them "more than half the year in quest of work or on the pretence of trade, account "in some measure for the prevalence of dacoities and highway robberies. "Such crimes are, however, very much fewer than they used to be, and every "endeavour is being made by the local and controlling authorities for their "suppression."

The working of the police department, although it showed some improvement, was far from satisfactory. The department is however in process of reorganisation, and it is believed that some time must elapse before a system approaching efficiency can be established. The functions of the police are beginning to be better understood.

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The health of prisoners was on the whole good, except at the Bangalore central jail, where there was a prevalence of scurvy, owing to the damp and cold during an unusually wet year. In this prison 588 convicts were taught the rudiments of reading and writing, against 496 in the previous year; and 186 learned to read and write well, against 141.

The demand on account of land revenue was 735,127 *l.*, showing an increase of 17,398 *l.*

There was an abundant rainfall, and the crops were generally good. The season was favourable for coffee.

The cultivated area, as compared with that of the preceding year, increased by 24,901 acres. The increase was principally under the heads of rice, sugar-cane, and dry grains.

There is a growing appreciation of the benefit of hospitals and dispensaries. The number of out-patients has steadily risen from 69,830 in 1871 to 105,550 in 1874.

Improvements which will considerably increase the water-supply of the town of Mysore were carried out during the year, and a commencement was made with works connected with the supply of water to Bangalore.

Education in Mysore made satisfactory progress. The year closed with 808 schools and 31,577 pupils connected with the department, being an increase of 34 schools and 4,279 pupils; but, as 28 of the new schools were established only in the last week of the year, this increase of 15·7 per cent. in the number of pupils is not due to the opening of fresh schools.

The "hobli" schools numbered 562, with 15,035 pupils, the increase in the latter being nearly 34 per cent. Of these primary schools the Inspectors reported 23 as very good, 146 as good, and 214 as fair. Applications for the establishment of schools of this class are of almost daily occurrence, and there is no doubt that the people as a whole appreciate the instruction imparted, which, elementary though it be, is yet superior to what was commonly obtainable in the formerly existing indigenous schools. But that consideration would probably not have sufficed to invest the hobli schools with the popularity they enjoy, had they not been established on the basis of the old country schools, and, to a great extent, under masters who had previously secured the confidence of their respective neighbourhoods.

As a preliminary measure, 37 of the purely vernacular schools, which had hitherto been graded in the lower class, and in which the standard of education was sufficiently high to justify the step, have been advanced a grade, and now rank in the middle-class schools.

It is stated that in Mysore not only is the number of schools sufficient, but almost all the children of a school-going age are actually under instruction.

With the view of preparing officers for the higher service in the Survey, Forest, and Public Works Departments, a special school of engineering and natural science has been opened in connection with the High School.

The Chief Commissioner is of opinion that there is unquestionably a disposition springing up in favour of female education, but both the attendance and the progress of the schools fluctuate very much.

Cochin.

The revenue realised by the Cochin State during the year ending 15th August 1875 was 125,152 *l.* Increased energy was shown in the execution of public works.

Travancore.

The revenue of Travancore was the highest on record, viz. 553,164 *l.*, and was larger than that of the previous year by 18,551 *l.* The increase occurred under various heads.

Poodoocottah.

In the small State of Poodoocottah there was a net increase of revenue to the extent of 1,549 *l.*, owing to the favourable season, and to waste lands having been consequently brought under cultivation. There was a cash balance at the close of the year of 44,644 *l.*, and the question arose how to employ the increasing surplus revenue. The working of the police was not good, but a new force has been organised from which better results are expected. Of 32 cases of dacoity, 29 remained undetected.

XIV.

FOREIGN RELATIONS.

Foreign Relations. Siam.

A TREATY had been concluded in January 1874 with the King of Siam with the object of affording protection and facilities to British subjects engaged in the timber trade with Zimmay. This treaty came into operation on 1st January 1875. It provided for the creation of a mixed tribunal for the adjudication of disputes between foresters who are British subjects and the Zimmay Chief, but, as far as the institution of this court is concerned, the treaty does not appear to promise success. The Native judge dreads any responsibility for proceedings which may make the Chief liable for large sums of money in favour of British subjects.

A raid occurred on the Amherst frontier; about 30 men (an offshoot of a large marauding band in Siam, numbering 300 to 400 Siamese, Shans, and Tongthoos) made an incursion into the Salween district, attacked a village, and carried off 1,300 *l.* and five captives. They had not since been heard of. It is supposed that they were part of a band of dacoits who infested the trans-Salween country in 1872. An investigation of the case was called for from the Siamese Government, but so far with no result.

Burma.

Relations with the Court of Mandalay maintained a friendly character.

China.

With a view to obtain accurate information and a scientific survey of the Bhamo trade route, an expedition was organised, on a scale which should furnish every guarantee for success. Negotiations to secure the unmolested passage of the party and their escort as far as the confines of China were concluded with the King of Burma. Mr. Margary, who had come overland through the Chinese provinces to meet the expedition, reached Bhamo in the middle of January 1875, and the party proceeded from that place on the 23rd. At Sawaddy they were detained by the obstructiveness of the Kachyens; and, after further delays, on 21st February they reached a spot within 12 miles of the town of Manwyne, where Mr. Margary had been hospitably received on his former visit. He accordingly preceded the party to prepare the authorities, but was treacherously murdered that afternoon in the town; and on the following morning the party was attacked by an armed Chinese rabble, and turned back to Bhamo. The measures taken to investigate into the conduct of the local authorities in this matter will come into next year's Report.

Thibet.

Some information regarding our commercial relations with Thibet will be found under TRADE (*p.* 59).

Bhootan.

A fair was established in 1874 for the promotion of trade between Bhootan and the plains, and was held at Santrabaree, near Buxa. From a mercantile point of view it was a failure, but it was successful as regarded the promotion of friendly intercourse.

The Lieutenant Governor interchanged visits with the Deb Rajah of Bhootan at Buxa. Everything possible was done to give a fitting reception to the Rajah and his followers, as it was the first time that a Rajah of Bhootan had agreed to meet a Lieutenant Governor of Bengal.

The Dèb Rajah, during the course of the interview, expressed the great pleasure he had experienced in coming to Buxa, and in making the Lieutenant Governor's acquaintance, his hope for improved communication and a lasting friendship between Bhootan and Bengal, and his desire in all matters to consult the Lieutenant Governor's wishes. The visits were visits of ceremony only, but nothing could be more satisfactory or cordial than the relations thus established.

North-Eastern Frontier.

The relations with all the tribes on the Burmese frontier were peaceful throughout the year, with the exception of two attempts at raids by Shindoos, which were frustrated by the prompt action of the police.

Several important visits were paid to British territory during the year by Chiefs and deputations. Among the latter were representatives of four clans of

FOREIGN RELATIONS.

the dreaded Shindoos, of whom the Chief Commissioner of British Burma remarks that their reputed skill in workmanship and superior *physique* would render them extremely desirable settlers within our frontier.

The continued efforts to tranquillise the frontier were attended with gratifying success. The Mro and Khyeng chiefs were invited to a feast, at which, to the number of about 60, they agreed to abstain in the future from raiding and from interfering with persons wishing to resort to our bazaars. In order to show the sincerity of their promises, they made a mutual interchange of captives taken in an intertribal raid in 1872-73, and four captives on the one side and five on the other were given up. Fighting was not renewed during the year between these tribes.

The following description is given of one of the tribes, which lies partly within and partly beyond the frontier:—"The Khyeng language is almost dis-"tinct from that of the other hill tribes. The dress of the men is confined to "the smallest possible strip of cloth, but the women dress more decently. "The Khyengs are the only tribe who tattoo the faces of their women, and "they themselves say the custom arose to prevent them being taken by the "Burmese rulers. The desire to mark their women so as to know them when "carried away by other tribes, or to conceal the women taken captive by them-"selves, may, however, either have given rise to the custom, or, at any rate, "helped to make it permanent. There is little hope of the custom dying "out, as the young girls look upon it as a disgrace not to be tattooed. "In their domestic lives there is little difference among any of the hill tribes, "and their social usages are much alike. With no caste distinctions, their "religion consists in a worship of the spirits, who require to be propitiated on "every occasion. Priests are unknown among them."

The trans-frontier Khyengs are even wilder and more uncivilised than those within the boundary.

The Shindoos do not differ very much in features from the other tribes of the district, and are probably of the same extraction. They are, however, rather better formed and more muscular, and both men and women are more decorous in their dress. They have a dread of water more than knee-deep, which, it is said, may account for their extraordinary filthiness. Their religious and other customs differ little from other hill tribes.

With regard to the tribes adjoining the new province of Assam, the Chief Commissioner remarks that, although relations with them were not of the peaceful nature which he could have desired, yet much progress has been made in securing peace for future years.

The Kookie and other tribes surrounding the district of Cachar were friendly, the Looshai expedition being still in their recollection.

The Nagas gave serious trouble, both the eastern and western tribes.

In 1873 a survey party, under Lieutenant Holcombe and Captain Samuells, explored the eastern hills towards the Patkai range. Although the Nagas were somewhat suspicious and sulky, it was hoped that on more intimate intercourse with us they would be convinced of our peaceable intentions. No show of hostility was made during that year, but in the following year, and the beginning of 1875, the scene changed, and Lieutenant Holcombe and his followers were treacherously massacred.

In the western hills Captain Butler, in charge of a survey party, was attacked on the 4th January 1875 by the people of Wokha, under which village his camp had been formed. The attack was made in great force, but was promptly met by a counter-attack, and, as the night was very dark, the village was fired and quickly occupied. The ascertained loss of the Nagas was 18 killed, and all their property was captured. On the other side, four men were slightly wounded. Again on the 10th January the party was attacked in open day, but the Nagas, who numbered 400 or 500 men, were easily driven off with considerable loss. Both these attacks were entirely unprovoked.

The Chief Commissioner thinks that the work done by the eastern and western survey parties in the Naga Hills is very satisfactory, and the addition to our knowledge of this part of the country invaluable.

The Mishmis are a powerful clan, extending to the border of Thibet and China, and trading with the latter country as well as with British India. Formerly they gave trouble, but they are now very cordial in their relations with us. In order to promote good feeling with the Mishmis, Khamtis, Singphos, and

other tribes, a fair is held annually at Sadiya. The trade in the beginning of 1874 far exceeded that of previous years, and everything passed off most satisfactorily, as was also the case in 1875. On the whole, this fair is very popular, and its advantages can hardly be over-estimated. It is not only the resort of people anxious to trade, but is used as a rendezvous by all the tribes who have difficulties to settle, or who wish to see the Deputy Commissioner on any subject. There seems little doubt that Sadiya will become a place of considerable importance in the history of this remote corner of the world, and the Chief Commissioner of Assam thinks that, when the time comes for opening up the unknown tracks between India and China, Sadiya will be the starting point. Foreign Relations.

The Abors occupy the hills adjoining the Mishmis. It is not known how far to the north they extend, but it is probable that their remotest clans are in immediate contact with Thibet. This tribe has always been warlike, and more or less troublesome, but in 1873 and 1874 it behaved fairly well. In the first of these years it was at war with its neighbours, the Chulikata Mishmis. An endeavour to bring about a settlement by British intervention failed, but in 1874 they came to terms of their own accord. It is satisfactory, as showing the extension of our influence over these rude people, that peace was ratified at our station of Sadiya.

It has been clearly proved that there was no political motive involved in the Duffla raid on Amtola. The object of the raiders was simply to seize a number of slaves, as equivalents for some of their people who had died of a disease which they believed, or pretended to believe, had been brought into their villages by persons living at Amtola. As soon as the raid was known to have occurred, the Tagin Duffla Duars were closed, guards of police being stationed in stockades at all the principal point along the frontier. These guards were afterwards replaced by military. Notwithstanding that the blockade was kept up as strictly as is possible in such a jungle-covered country, and along so extended a line, the release of the captives was not obtained. The Dufflas believed in the inaccessibility of their hills, and laughed at the idea of our entering them. The result was that a large force was collected, and in the cold season of 1874-75 effected, without any opposition, the release of all the captives who had survived the hard treatment to which their temporary masters had subjected them.

It is believed that, although the raiders were not punished, except by fines, the effect of this expedition will be permanent. The expedition has shown the Dufflas and the neighbouring tribes, who were eagerly watching the result, that we can enter their remotest hills in large numbers, and stay there a long time. On the other hand, it has much increased our knowledge of the tribes.

Fairs have been held at a place called Udalgiri for a great many years back. The principal frequenters of it are the Thibetan Bhooteas of Towang. The inhabitants of Bhootan proper are prevented as much as possible from attending by the Thibetans, in order that the latter may reap the profits of the trade. In 1875 the imports were calculated at about 4,480 *l.*, and the exports at 3,540 *l.* The articles brought down by the Bhooteas are ponies, sheep, dogs, salt, blankets, yâk's tails, musk, chillies, spices, &c.; and they take in exchange English and Assam cloths, thread, rice, betel-nuts, cooking utensils, bar iron, &c. The fair, as usual, passed off quietly.

On the Agrore border the Akazai tribe gave much trouble, harassing the valley by keeping up a constant fear of raids, carrying off cattle and other property, and burning houses. As, however, they have made full submission, imploring forgiveness of the past, it is hoped that a resort to military coercion, which at one time appeared inevitable, may not be necessary. North-Western Frontier.

In the autumn of 1874, compensation, amounting to about 100 *l.*, for various petty acts of plundering, was demanded from the Hassan Khel section of the Afreedies, and the tribe appeared disinclined to an adjustment; reprisals were made on the 20th October by seizing a large caravan of camels laden with grain, but it was not long detained, as security was at once tendered by the tribe, who satisfactorily adjusted all the claims within the following 15 days.

By a settlement of differences which was effected in the spring of 1874, two sections of the Orukzai tribe bound themselves as sureties for their future good behaviour. They have since given no trouble whatever.

FOREIGN RELATIONS.

On the occurrence of a raid in the Bannu district, full reparation was exacted from the two tribes concerned, and compensation awarded to the sufferers, aggregating 200*l*. After that, the frontier was undisturbed, the occupation of the two great sections of the Wuzeer tribe in internecine strife and feuds tending doubtless to withdraw their attention from plundering in British territory.

In Dera Ismail Khan two plundering raids were committed by sections of the Mahsud Wuzeers in the latter part of the year. For both full reparation has been demanded and partly obtained, the hostages of the offending tribe being committed to prison, and other members of the tribe, to the number of 50, being detained pending restoration of the property carried off, which consisted entirely of camels. The animals deported in the first case were quickly restored as a result of the measures taken, and the greater number of those carried away in the second raid have also been gradually recovered. All the property belonged to wandering tribes of Povindahs, who had exhibited extreme laxity of precaution on exposed parts of the border beyond immediate police control; and the raids are believed to have been promoted rather in the interests of particular factions than as evidence of hostility on the part of the Wuzeers.

With the above exception, the general state of this part of the frontier during the year was satisfactory. Several Hindoo boys, who had been kidnapped and carried away into the independent hills by small parties of marauders, were recovered through the influence of the tribal representatives, and restored to their families, and one or two criminal refugees were delivered up to justice. These are gratifying results of the measures taken with one of the most fickle and troublesome tribes on this frontier.

No raid occurred on the Dera Ghazee Khan border. One British subject was murdered, but the offenders were delivered up to justice by the headmen of the tribe.

On the whole, the list of outrages on the Punjab frontier is not so favourable as that of the previous year, but the Lieutenant Governor forcibly contrasts the peace and security which now generally prevail in those parts with the state of things in days gone by.

A continuous policy of conciliation, a growing trade, and a wholesome fear of speedy chastisement for hostile acts, have combined to make the tribes amenable, and to render the frontier districts almost as tranquil as those of the interior. Where twenty years ago all was desolate, cultivation now presses the extreme limit of our territory, and rich crops are gathered in the very mouths of border passes.

India Office,
7th August 1876.

HENRY HILL.

STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION

OF

INDIA

DURING THE YEAR 1875-76.

(PRESENTED PURSUANT TO ACT OF PARLIAMENT.)

Ordered, by The House of Commons, *to be Printed,*
31 *July* 1877.

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STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION OF INDIA

DURING THE YEAR 1875–76.

I.

ADMINISTRATION AND LEGISLATION.

ADMINISTRATION. Bengal.

The welcome given by all classes in Bengal to the Prince of Wales was an assuring evidence of the loyalty of the people towards the British Government. The wealthier Natives in different places raised large subscriptions to commemorate the event by founding educational institutions, and by promoting other works of public usefulness.

Two appointments ordinarily reserved for Civil Servants were conferred on Natives of good position, character, and experience. Sir R. Temple is a strong advocate of this policy, and intends carrying it out in the future, with due regard to the claims of British officers now in the service.

In the Uncovenanted Service the higher classes of Native officers maintained their character for integrity.

It was determined that, in future, only Natives who are graduates of the University should, as a rule, be appointed to the superior posts in either the judicial or the executive branch. Sir R. Temple anticipated much advantage to the service as the effect of this measure.

The decision, mentioned in the last Report (p. 2), to offer for competition annually a fixed number of places in the Subordinate Executive Service was acted on in the year under report. Five successful candidates were immediately provided with appointments. These subordinate establishments are stated to be exceedingly useful, and to supply a want which had long been felt in the Lower Provinces.

The system of concentrating in the Magistrate and Collector all powers and functions within the limits of his district continued in force. The importance of this concentration outweighed, in Sir R. Temple's opinion, the objections expressed in some quarters, while, at the same time, the magistrates were reminded that they must be careful to evince forbearance and consideration in the exercise of their greatly extended authority. The subdivisional system was completed throughout the province, and its merits appeared to be universally acknowledged.

Madras.

On the 27th April 1875 Lord Hobart died, after holding office for nearly three years as Governor of Madras, and he was succeeded on the 23rd November following by the Duke of Buckingham. During the interval between those dates the administration was conducted by Mr. (now Sir W.) Robinson.

Punjab.

The scheme referred to in the last Report (p. 2) for the increase of the judicial staff and the partial separation of judicial and executive functions in the Punjab worked successfully during its first year of operation. Deputy Commissioners are now free to devote a larger portion of their time to the administration of their districts and to the management of revenue matters. It is not considered that it would be advisable to entirely relieve the magistrates in this province of criminal judicial powers, which in the eyes of the Natives constitute the most important part of their authority.

Berar.

Mr. Saunders, on his appointment to the Chief Commissionership of Mysore, was succeeded as Resident at Hyderabad on the 4th December 1875 by Sir Richard Meade.

British Burma.

On the 17th April 1875 Mr. Rivers Thompson succeeded the Hon. Ashley Eden as Chief Commissioner of British Burma, Mr. Eden having been appointed a member of the Governor-General's Council.

In the Administration Report for 1875–76 the following remarks are made with regard to the administration of this portion of Her Majesty's Eastern possessions :—

"Though our rule in Burma becomes gradually more consolidated year by year upon the "principles and procedure of older provinces, it cannot be overlooked that in this, the latest "pendant to our Indian dominion, there are many administrative axioms based on a com-"munity of race and religion, on a similarity of tastes and traditions, which fail entirely of "application. Burmese administration has its special conditions, demanding in many things "political appliances, and perhaps the greatest risk incurred is lest among a primitive agri-"cultural race the sudden influx of material prosperity and wealth, and the sudden intro-"duction of modern rule and requirements, should actually retard a natural and healthy "development."

Municipalities. Bengal.

The year 1875–76 was the last of the old municipal corporation of Calcutta, which consisted of the 129 Justices of the Peace. It was felt that the corporation did not sufficiently represent various classes in the community who, by their growing wealth, their improved education, and other claims, were entitled to a definite voice in the management of the city. An Act was therefore passed for establishing a new municipal constitution, and a corporation consisting of 72 Commissioners, of whom two-thirds should be elected, and one-third appointed by Government. Since the close of the year the first elections were held; a considerable portion of the electors voted, and a fairly representative body of Commissioners was returned. As, however, but few Europeans were elected, the desired proportion was made up by the appointments of the Government.

In 1875 the Chairman, in accordance with the opinion of some members of the corporation, ordered a re-assessment of the town. As this measure affected the interests of a large number of ratepayers, it was loudly censured, but the result proved its necessity. The aggregate annual increase to the municipal income amounted to no less than 14,239*l.*

The ordinary income of the municipality for 1875 was 292,174*l.*, being higher than that of 1874 by 25,335*l.*; the total amount at the disposal of the corporation was 408,215*l.* The ordinary expenditure reached 336,035*l.*; adding that chargeable to capital account, the total was 386,802*l.*

The Act for reconstituting municipalities in the interior was also passed, but did not come into operation until after the close of the year. This Act, while not providing for any increase of taxation, gives extended powers to Commissioners in regard to the expenditure of municipal funds.

There were 192 provincial municipalities, of which the aggregate income was 185,797*l.*, exceeding that of the previous year by 4,797*l.* There was a slight increase in the number of non-official and Native members of committees, but the difficulty of securing suitable persons still continued. As a rule the committees worked with zeal and vigour, and showed a fair degree of interest in measures affecting the improvement of their towns.

Madras.

The ordinary receipts of the Madras Municipality in 1875–76 were 56,060*l.* The conservancy of the town was properly attended to. In the expectation of Mr. Clark's drainage scheme being shortly carried out, very little work was done in that line.

The provincial municipalities showed an advance in efficiency. The aggregate income was 113,637*l.* The collections from tolls do not fall entirely on residents within municipal limits, and it has been determined that in future a certain proportion of these receipts shall be made over to Local Fund Boards. Of the available income, 38 per cent. was spent on sanitation, and 28 per cent. on new works and repairs, but only 5 per cent on education.

Bombay.

Including the capital, there were 10 city municipalities in the Bombay Presidency (of which four were in Sind) and 170 town municipalities. The former comprise the great trading centres.

Bombay is administered under a special Act, which gives to the citizens the privilege, to a great extent, of electing their representatives; and the Government state that they have no reason to regret this measure when they compare the present state of the city with what it once was. The total income of 1875 was 314,352*l.*, of which 231,808*l.* was raised by taxation proper. Town duties produced 67,299*l.*, or 18,734*l.* more than in 1874; this increase was partly owing to the enhanced tariff value of some of the articles imported. The fall in the rateable valuation of house property continued, and further affected the municipal revenue. Building was said to be going on at the rate of about 300 new houses a year. The halalcore (or scavengering) cess, however, increased by nearly 800*l.*, in consequence of the extension of this service to Malabar Hill and other parts of the city. There were 230 new water-connexions made during the year. The night-soil depôt at Carnac Bunder was greatly improved; the

building was reconstructed and roofed in, the pipe to the sea was relaid, and engines and pumps were erected to flush the depôt with sea-water. In the Health Department a very high degree of efficiency was maintained at a reduced cost. A large portion of the street sweepings was utilised in the reclamation of land, from which a considerable rental is derived.

In the other city municipalities also great improvements have been effected, and particularly at Poona, where the construction of the great irrigational dam at Kurruckwasla has proved of immense advantage.

In the towns generally municipal government is not popular, any amount of filth or inconvenience being preferred to the imposition of a direct tax; eight new municipalities were, however, opened during the year. A large portion of the revenue is raised by a light octroi, to which, as a remnant of the old transit duties, but little objection is felt, while efforts are made to prevent it from acting as a transit duty. It is, moreover, being annually more and more relieved by assessed rates. In the Presidency proper the incidence of taxation is slight; it is considerably higher in Sind than elsewhere.

Punjab.

The number of municipalities in the Punjab at the close of the year was 196. Of a total income of 203,043*l.*, the portion derived from octroi was 170,679*l.*; this was the sole source of taxation in 154 towns. In all the important municipalities the octroi was collected under direct management; in several of the minor towns the collection continued to be leased to contractors, because of the disproportionate cost that would otherwise have been entailed by establishments.

North-West Provinces.

In the North-West Provinces the number of municipal towns in 1875–76 was the same as in the preceding year. In most of them the members of the committee are elected by the inhabitants. The aggregate income of the year was 203,651*l.* Of the expenditure, 33 per cent. was on public works; much useful work was done in paving and draining. There was a considerable sum in reserve at the close of the year, owing to the committees saving up money for large works of local improvement; the Government, however, expressed an opinion adverse to this policy.

Octroi amounted to 88·8 per cent. of the total receipts; the per-centage was slightly less than that of the preceding year, but the actual amount was greater, in consequence chiefly of large importations, especially of grain, owing to the good harvests of the year. It was levied in all but nine municipalities, and in 55 it was the only tax in force. In some cases articles were exempted from taxation because it was found that the system of refunds did not protect the through trade. In one town the octroi was altogether abolished, and a tax on "circumstances and property" substituted. Tobacco was exempted in another town, and metals in two others.

Besides the municipalities, there were 318 towns providing for their administration on a small scale out of funds raised by a kind of income tax on the townspeople. Although this tax is not a popular one, its incidence is very light, and it is the means of gradually effecting much improvement in the condition of the towns.

Oude.

With the exception of Lucknow and Fyzabad, all the municipalities in Oude are small. The privilege of electing members does not appear to be appreciated as yet. For an election at Lucknow only seven votes were recorded, and the members were in consequence nominated.

The total receipts for the year were 41,321*l.*, against 44,762*l.* for 1874–75. Although the total amount was less, octroi yielded 33,753*l.*, against 31,903*l.*

Octroi was also levied, under the authority of Government, in several towns not having a municipal constitution.

Ajmere.

The municipal income of both Ajmere and Beawur showed a considerable increase; in the former case it advanced, as compared with the preceding year, from 3,684*l.* to 4,812*l.*, and in the latter from 1,686*l.* to 1,954*l.* This improvement is stated to be the result partly of the opening of the railway to Ajmere, and partly of the substitution of direct collection of the octroi for the farming system. By far the greatest part of the taxation is in the form of octroi, the profits from which steadily increase. Careful inquiry was made during the year respecting the incidence of this tax, with the result that it was not found to be injuring trade; and it is said to be collected with little friction or discontent.

The committees are reported to manage their affairs efficiently. They did their best to improve the sanitary condition of the towns. The question of a water-supply for Ajmere was considered, but the magnitude of the work would probably necessitate a loan. This city is badly situated for sanitation; on the contrary, the situation of Beawur is favourable, and its water-supply and other arrangements are good and effective.

Central Provinces.

There was an increase of three to the municipal institutions of the Central Provinces, making 59 in all. It is the rule that at least two-thirds of the members shall be non-official, but in many cases the privilege of election is not prized, while in some of the smaller towns there is no competition, certain influential citizens having been already long looked

up to as unofficial representatives of their townsmen. In the larger towns more interest is displayed in the elections.

The committees are stated to perform their duties generally with intelligence and energy. While in many instances the official members, from their superior position and experience, take the lead in affairs, the other members are not backward either in council or in action.

In 41 towns octroi was the main or only form of taxation. Under the old Mahratta government a considerable revenue was derived from town and bazaar duties, and hence the people are thoroughly reconciled to a light tax limited to articles consumed in the town itself. The through trade is protected by the refund system. Some of the towns on highways of traffic have imposed a license tax instead of octroi, rather than incur any risk of the latter becoming a burden on goods in transit.

The municipal revenue from all sources amounted to 58,363*l.*, of which octroi yielded 52,499*l.* The distribution of the funds showed that due regard was paid to the important objects of sanitation and education. The condition of many of the towns is stated to be very different from what it was some years ago. The people generally are very apathetic in matters of conservancy, and in this respect the committees were acting a most useful part.

Berar. The five Berar municipalities were reported to be giving due attention to sanitary and other local matters affecting the health and convenience of the townspeople.

The tax on trades and professions was reduced from 2 to 1 per cent., and some other taxes were introduced or increased by way of compensation. The result was that the receipts during 1875–76 amounted to 7,952*l.*, against 8,011*l.* in 1874–75.

British Burma. Consequent on the Act of 24th March 1874, municipalities were established in the seven principal towns of British Burma. As yet but little interest or intelligence is displayed by the Native element in their administration. The aggregate income was 147,230*l.*, of which Rangoon contributed 89,994*l.* One main source of revenue is rent from Government markets, which has a great advantage over the octroi duties levied in other provinces. This form of taxation is entirely in accordance with the temper, tastes, and traditions of the people, and serves, moreover, as a valuable index of the development of retail trade. The other two chief sources of income, common to all municipalities, are the taxes on houses and lands and the proceeds from the sale of licenses.

Rangoon is naturally the most forward of the municipal towns, and the majority of the members of the committee are reported to take an energetic interest in its affairs. Two or three years ago this town contrasted most unfavourably with others of the province, in having all its bazaars in the hands of private speculators, to whom profit and economy were the first considerations. The natural objection to checking individual enterprise in any useful direction long hindered Government from starting any markets of its own in the city. In 1874, however, a first experiment was made in the suburb of Puzoondoung, and a building was completed at a total cost of 2,058*l.* Its success seems far from being assured, and the returns have hitherto been inappreciable. Another large bazaar has been erected on the Strand, at a cost of about 30,000*l.*, under far more prosperous conditions; a profit is expected, estimated at 15 per cent. on the total cost, and no expense has been spared to ensure its continued popularity.

LEGISLATION. Government of India. The Legislative Council of the Government of India passed 18 Acts within the year 1875–76, of which the most important was the Tariff Act, No. XVI. of 1875. By this Act all export duties were abolished, except those on indigo, rice, and lac. With regard to the import tariff the valuations on which duty is assessed were revised, and the general rate for such articles as were not taxed at a specific rate was reduced from $7\frac{1}{2}$ to 5 per cent. The only fresh duty imposed was one of 5 per cent. on long-stapled raw cotton not the produce of continental Asia or Ceylon. In an appendix to the Progress Report for 1873–74 a statement was given showing the several modifications of customs duties that had been effected in past years; the revised tariff will be found in a return made to an order of the House of Commons in 1876 (No. 56). It was estimated that the change of tariff will involve a net loss to the Exchequer of 308,000*l.*, but on the other hand a great benefit will be conferred on trade. Several memorials have been received from Chambers of Commerce praying for the complete abolition of the import duties on cotton, and the Government, while unwilling, for financial and other reasons, to act rashly in the matter, has expressed its concurrence in principle with the desire of the memorialists, and has promised that the gradual remission of the duties shall be carried out as the state of the finances renders it possible.

Acts were passed relating to the courts, and to the land and land revenue, of British Burma, and another regulating the transport of labourers to that province.

Another Act provided for the establishment of reformatory and industrial schools, the benefits of which, however, owing to the peculiar circumstances of India, would be limited to

boys. Three classes of boys may be sent to these schools: (1) boys under 14 convicted of offences punishable with transportation or imprisonment, but not sentenced: (2) boys under 12 sentenced to imprisonment; (3) boys under 14 who associate with thieves, vagrants, &c., or are without visible means of subsistence. The minimum period for which a boy will be sent to a reformatory school is two years, and the maximum seven years; but no boy will be detained after he attains the age of 16. Municipalities are empowered, with the sanction of the Local Government, to apply their funds to the establishment or maintenance of the schools, and magistrates of the first class may order the parents of young offenders to contribute a moderate sum for their support.

The last measure of sufficient general interest to be mentioned here was the Native Passenger Ships Act (No. VIII. of 1876), the object of which was to consolidate the four Acts previously in force, and at the same time to make certain amendments. It was found that there was much in the existing law not suitable to the actual shipping arrangements of the day. The principal change made was that the accommodation for passengers is to be determined, not by the tonnage of the vessel, but by the space available. The minimum space prescribed by the Act is 3 square feet of superficies and 54 cubic feet to each passenger. The new Act will have an important bearing on the question of the overcrowding of pilgrim vessels; and negotiations have for some time past been pending with the Ottoman Government with a view to rules, which shall be in conformity with the Indian Act, being laid down by that Government for the regulation of the pilgrim traffic in the East.

Bengal.

By the Bengal Council five Acts were passed, of which one provided for the survey and demarcation of land, and another for the regulation of irrigation and of the levy of water rates in the provinces subject to the Lieutenant-Governor of Bengal; another related to the registration of marriages and divorces among Mahomedans. The Calcutta Municipal Act has been referred to above (p. 2).

Madras. Bombay.

In Madras one Act was passed, and four in Bombay, but none of them were of any public importance.

II.

JUSTICE AND POLICE.

STATE OF CRIME. Bengal.

There was a considerable decrease in the number of offences reported in Bengal; this was ascribed to the absence of the exceptional causes which were at work in 1874 in connexion with the famine. While there was an increase in offences against the person, there was a large decrease in those against property.

A very favourable feature was the great diminution of cases of dacoity, which numbered 236, as compared with 421 in 1874. There were only two instances of murder committed by dacoits; in this respect there has been a rapid improvement since 1872.

The number of prisoners previously convicted was 6,220, or 12·22 per cent. of the whole. Of this number, 3,783 had been convicted once before, 967 twice, and 1,470 more than twice. Of 413 prisoners under 16 years of age, 63 had been previously convicted. Altogether the reconvictions increased in the space of four years by no less than 123 per cent.

A Bill having been passed for the establishment of reformatories, the authorities will in future be able to bring all juvenile convicts under educational discipline.

Madras.

In the Presidency of Madras there was an increase of petty offences, but under serious crime improvement was shown, dacoities, house-breakings, and thefts having all decreased. The list of dacoities was 229, the lowest yet recorded. They were mostly committed by Moplahs. The number of false charges of dacoity and robbery exceeded, as usual, the number of true cases. With the decrease of crime there was improvement in detection.

Bombay.

There was a satisfactory decrease of crime in the northern districts of the Bombay Presidency and in Sind. In the latter the improvement was general, except on the frontier. Shikarpur bears an ill repute for murders; of 38 cases which occurred during the year in Sind, 18 were in that district. The Commissioner traces the extraordinary prevalence of this crime to susceptibility in regard to interference with women. The police succeeded in obtaining convictions in 16 of the 18 cases in Shikarpur, and in 28 of the total 38 murders committed in the province.

The general decrease of crime was chiefly conspicuous in offences against the person; offences against property showed an increase. In the preceding year improvement had chiefly occurred in the latter class of offences.

Of a gross total of 114,992 persons dealt with by the courts, 41,549 were discharged, 22,331 acquitted, and 46,485 convicted. It is noted as a satisfactory feature in the returns that, whilst there were 14,048 fewer acquittals and discharges, and 12,320 fewer persons to be dealt with altogether, there were 2,387 more convictions.

The number of juvenile offenders does not tend to increase, the total for 1875 having been 428, against 448 in 1874 and 430 in 1873. Good provision is made in this Presidency for dealing with such cases in the way of institutions where young offenders can be trained to honest trades under careful superintendence.

Measures continued to be carried on against the outlaws under Honya (referred to in the last Report, p. 7), which ended in the capture of the ringleader by the police. It also became necessary to take steps for the suppression of agrarian riots in the Poona and Ahmednuggur districts, further mention of which will be found on page 23.

During the year the police made 81 arrests in the city of Bombay, and 15 vagrants voluntarily appeared before the magistrates. Of this total of 96, one person was received into the Strangers' Home, the rest going to the workhouse. In the interior, 15 vagrants were brought before the magistracy, viz., 11 in Khandesh, 2 in Kurrachee, and 1 each in Surat and Kanara. Of these, 9 were sent to Bombay. The total number thus entering the workhouse in 1875 was 102 (or 13 more than in 1874), and, as 24 remained in the workhouse on 1st January 1875, the total population for the year of report was 126. Of these, 46 were discharged on obtaining employment, 5 were made over to their friends, 9 were sent to the European General Hospital, 9 to the Strangers' Home, and 5 to the Sailors' Home; 18 deserted, and 2 escaped; 6 were deported to England, and 1 was released but not removed from British India; 3 were sent to England by the Shipping Master as distressed seamen, and 2 remained in the workhouse at the close of the year. Punishment was resorted to in 29 instances, the offences being chiefly drunkenness and irregularity in returning to the workhouse from leave to look for employment. The health of the inmates was good. The total cost to Government on account of vagrants throughout the Presidency was 821*l*. Taking the nationalities and previous occupations of the 102 vagrants admitted to the workhouse in 1875, it appears that 71 were British-born subjects and 5 Europeans of other countries, 3 were Americans, and 23 Eurasians. Twenty-five had been in railway employ, 3 clerks in Government offices, and 16 clerks in private firms; there were 23 sailors,

3 soldiers, a groom, a play-actor, 2 apothecaries, 2 chemists, 8 mechanics, and the rest of various occupations.

Punjab. The statistics of crime in the Punjab remained generally stationary as compared with the preceding year. The proportion of reconvictions was, amongst male prisoners 13 per cent., and female 5 per cent., while amongst juveniles the ratio was as high as 26·81 per cent.

North-West Provinces. The number of cases reported by the police in the North-West Provinces was higher by 7,000 than in the preceding year, but the great majority of offences were of a trivial character, and the increase was more apparent than real. In serious crimes, such as rioting, culpable homicide, robbery with violence, and theft, there was a diminution. The offence of house-breaking continued very prevalent; the experiment of severe sentences was being tried in the hope of suppressing it.

The improvement in heinous crime was in great part attributed to the breaking up of several notorious dacoit gangs, and to measures taken for ensuring the safety of the public roads by the systematic patrolling of the rural police. The most famous gang of dacoits was that under Randhir Singh, who had carried on his operations for eleven years, but was at length, during the year under report, hunted down by the police and shot, while his five followers also met their deaths fighting.

Oude. In Oude there was a further decrease of crime in 1875–76. As in the former year, the improvement was most marked in cases of theft by house-breaking. Under thefts generally there was a great diminution, the low price of grain having removed a source of temptation. Murders and attempts to murder fell from 125 to 109. On the other hand, there was an increase in the cases of culpable homicide from 63 to 78. Twenty-four cases of dacoity were reported, but none of them were attended with murder.

The proportion of juvenile to adult prisoners was 1·5 per cent., being higher than in any year since 1870. Reconvictions amongst juvenile offenders were also very numerous.

Ajmere. The report on crime in Ajmere for 1875 was much more encouraging than that for the previous year. In the number of offences reported there was a great diminution, amounting to nearly a quarter of the whole criminal returns. For this improvement credit is given mainly to increased efficiency in police administration, and other causes mentioned are the lowness of prices, the abundant demand for labour on public works, and the responsibility entailed on headmen of villages, as well as on the thakoors, to keep order in their estates. The decrease occurred in all classes of crime, but principally under the head of thefts. There was not a single case of murder or dacoity. There was an entire absence of border crime, which was partly due to the energetic measures taken by the Marwar durbar for the suppression of such crime.

In the number of juvenile prisoners there was a notable decrease; those under the age of 16 years numbered 14, against 51 in 1874. All these young offenders are taught trades, and those whose term exceeds six months are also instructed in reading and writing.

Central Provinces. There was a continued improvement in the amount of crime in the Central Provinces, again attributed to the effect of agricultural prosperity. Serious offences against person and property, and property only, decreased by 11 and 3 per cent. respectively. On the other hand, serious offences against the person only showed an increase, principally in murders and attempts to murder.

Berar. In the Hyderabad Assigned Districts heinous crime continued in about the same ratio as in the preceding year. There were investigated 33 cases of murder, of which, however, only 16 were prosecuted to conviction; and 11 cases occurred of dacoity.

There was a considerable decrease in sentences of imprisonment on offenders who had once before been convicted, but in regard to those who had been more than once previously convicted there was an increase. In the number of juvenile offenders there was a marked improvement.

Coorg. Crime showed an increase in Coorg as compared with the previous year, which increase was entirely due to a larger number of offences in the form of coffee stealing.

British Burma. Although, as a fact, less aggregate crime was reported in British Burma, there was a serious advance in many of its graver forms. Murders increased from 72 to 77; hurt by means of dangerous weapons from 219 to 323; and housebreaking from 518 to 697 cases. The prevalence of the latter class of crime is in a great measure due to the flimsy building materials employed by the Natives, and to carelessness in the protection of their property.

Dacoities, which for some years back had steadily diminished in number, rose in this year from 23 to 38; there is, however, reason to believe that the rise was due to exceptional causes and abnormal. In the spring months the events connected with Sir Douglas Forsyth's mission, and the stir and peril which prevailed beyond the borders, in some degree affected our own possessions, and encouraged some obscure criminals in the Rangoon district to

attempt an organised system of pillage. There were few police in the sub-division, and these were under the supervision of a weak and timid Native magistrate, who could effect nothing against the marauders. The latter finally consummated their career of crime by murdering a policeman, badly wounding the District Superintendent, and killing Colonel Hamilton, the Inspector-General. The gang succumbed, however, to the attack. Their actions were emulated by another band of dacoits in the same district, under two leaders, who were captured towards the close of the year, whereupon the sub-division resumed its usual tranquillity. In most other parts of the province quiet and order were maintained.

There was an unsatisfactory increase both in the proportion of re-convictions and in the number of juvenile prisoners. The latter rose from 136 to 178; of the total number, 15 had once before been in prison, and 9 more than once, and 113 were wholly illiterate.

INFANTICIDE. Bombay.

In last year's Report (p. 9) a summary was given of the history of infanticide in the States of the Bombay Presidency. The following are some statistics for the year 1875–76.

In Kattywar, taking all the Rajpoot tribes, the per-centage of females to males was 90·70, or, taking only the Jadeja tribe, 91·39. In 1872 (the latest year to which the above summary was carried down) the per-centage among the Jadeja tribe was 90·93. The death-rate among male infants in 1875–76 was 15·59 per cent. on the total number of male births, and among females 15·19 per cent.; the rates in the previous year were 18·03 and 16·02 respectively. The number of unmarried Rajpoot girls of a marriageable age was 1,545, as compared with 1,508 in the preceding year. It is clear that the practice of infanticide is not now prevalent in Kattywar. A plan for encouraging Rajpoot marriages by limiting the expenditure on a marriage to one-third of a year's income was favourably received by the classes interested.

The returns for Kutch are not so satisfactory. The per-centage of infant deaths to births among males was 18·30, and among females 31·13, against 25·47 and 30·05. Compared, however, with the previous year the results are not considered unfavourable, although there is still great room for improvement.

The per-centages in Pahlunpore were 10·52 and 12·90 respectively, against 7·69 and 26·47 in 1874–75; and in Mahee Kanta they were 16·32 and 36·66, against 6·45 and 27·45.

North-West Provinces.

In the North-West Provinces the year 1875–76 opened with a proclaimed population of 393,529, inhabiting 3,113 villages. In the course of the year 51 villages were exempted, and one was proclaimed, so that the year closed with 3,063 villages on the list; of these, 523 were stated to be specially guilty.

The following were the respective per-centages of the births of girls and boys on the total births, as compared with those of the preceding year and with the English rate :—

—	English Rate.	North-West Provinces Rate.	
		1874–75.	1875–76.
Girls - -	49·32	47·91	47·96
Boys - -	50·68	52·09	52·04

Thus, while in the English rates there was a difference of 1·36 in favour of boys, the difference in the North-West Provinces rates for 1875–76 was 4·08 in favour of boys, showing that in the latter case concealment of female births was practised. The divergence in particular districts was considerably higher than the averages above shown.

The following is a similar comparison with regard to deaths :—

—	English Rate.	North-West Provinces Rate.	
		1874–75.	1875–76.
Girls - -	44·62	48·35	46·93
Boys - -	55·38	51·65	53·07

The English difference in favour of girls was therefore 10·76, while in the North-West Provinces it was only 6·14.

A comparison with English rates of the per-centage of deaths of each sex under one year old on the living population within that limit of age brings out very distinctly the fact that

the mortality among female infants was 4 per cent. in excess of what it should be. The figures are as follows :—

—	English Rate.	North-West Provinces Rate.	
		1874–75.	1875–76.
Girls - -	14·27	22·78	24·92
Boys - -	17·24	22·38	25·97

It is further shown that between the ages of 1 and 12 about twice as many girls died as boys, while the rate was 2½ times greater than the English rate.

The per-centage of female infants to the total infant population in the proclaimed districts was, at the beginning of the year, 29·93,* and at its close 31·41, showing that some improvement was obtained. Progress was discerned in every district. A great difficulty which magistrates have to encounter is the evasion of the law by the removal of pregnant women to another district or to an unproclaimed village.

Oude. From a census taken for two consecutive years of Rajpoot children in 649 villages of Oude the inference is drawn that infanticide is not practised to any great extent in this province.

Magistrates. Bengal. The rule conferring summary jurisdiction on magistrates in petty cases continued to be regarded with dissatisfaction by many among the upper and middle classes of the Natives in Bengal. The objections made, however, were only of a general character, specific complaints being but seldom adduced, and then very rarely established; while the system has resulted in the greatest possible convenience to the public as well as to judicial officers. Sir R. Temple testifies that, with a very few exceptions, the magistrates are actuated by a hearty desire to treat the Natives well.

In about one-third of the whole number of cases summarily disposed of Native gentlemen were associated with the salaried magistrates. The promotion of this policy will be kept in view as the best means of commanding general confidence. There were altogether 946 honorary magistrates in the province, and they were reported as showing increased zeal and interest in the work. The office also was rising in esteem.

Punjab. The work done by honorary magistrates in the Punjab is stated to have been considerable, and on the whole fairly good, and the system was greatly extended during the year.

Ajmere. In Ajmere the honorary magistrates rendered efficient aid in disposing of the criminal work, of the whole of which they performed 37 per cent. The arrangement is a great convenience to the parties concerned in the cases, for the residence of the majority of the magistrates in the interior of the district prevents the necessity of summoning witnesses from a distance.

Central Provinces. The magistrates of the Central Provinces are reported to have shown great energy in the disposal of cases, while the small number of appeals and their result indicates that the decisions were generally sound. The weak point in their action appears to have been the excessive leniency of the punishments awarded. The large proportion borne by the number of reconvicted prisoners to the total jail population was evidence of the inadequacy of many sentences. The same complaint was made in the previous year (*see* last Report, p. 8).

Honorary magistrates continued to afford great assistance in administering justice, and in the interior of districts especially proved useful. The Chief Commissioner aims at confining the distinction to persons of good social position and education, and prefers keeping the number low to making the office less prized than it now is.

Police. Bengal. Improvement was reported in the general conduct and discipline of the Bengal police. In cases of punishment there was a considerable decrease, while as many as 643 officers and men were specially rewarded for ability and courage evinced in the execution of their duties. In respect to popularity, there did not appear to be any improvement; there was a tendency to make hasty arrests and to be harsh and rough in bearing, but the authorities used every means to discourage both these faults. A great drawback lies in the status of the subordinate officers, but a remedy to this can only be applied at considerable expense. The per-centage of cases successfully prosecuted compared very unfavourably with that in other provinces; of the number of persons arrested only 59·5 per cent. were convicted. The

* In the last Report this per-centage was given as 30·9; no explanation of the discrepancy is afforded in the accounts received from India.

unnecessary arrests are attributed chiefly to ignorance, and improvement can therefore only be looked for as the police become better educated, and more alive to their duties and responsibilities.

The number of men in the regular police returned as able to read and write was 8,808, besides 109 in the Government railway police, making a total of 8,917, against 8,776 in the previous year; and 2,979 besides were under instruction. While these figures show some improvement, still nearly half the entire force remained wholly uneducated.

Although not a single case of torture was proved during the year, there were several well-founded charges of extortion or bribery.

Progress was made in improving the status of the village police. Under an Act passed in 1870, magistrates are empowered to cause a proper income for the village watchman to be raised by the villagers themselves, which ensures the employment of competent men.

Madras. The per-centage of men in the Madras police who were departmentally dismissed or punished was 28·7, against 32·4 in the preceding year. The per-centage of those who could read and write increased from 63·2 to 64·5.

Bombay. The reports of the conduct and efficiency of the police in Bombay were very favourable; their discipline was improving, and there was a larger proportion of experienced and educated men. Of 12,189 persons whom they brought up 93 per cent. were convicted; but they had not yet generally attained a high degree of success in the detection of crime or in the recovery of stolen property. A considerable number of the men are, however, engaged on other than purely police duties, and in the Hyderabad District especially the force is said to be greatly undermanned, the consequence being that the men are overworked, and efforts to suppress crime are in a great measure defeated, while, moreover, no time is left for educational improvement. It is reported, to the credit of the railway police, that, in connexion with the Prince of Wales's visit, no less than 20 Chiefs and their suites travelled on the Baroda line to Bombay and back without the loss of a single article.

Punjab. From the Punjab also the accounts are satisfactory. The dismissals and resignations again showed a decided decrease. It is stated that the service is now much more sought after than formerly; a better stamp of recruits is obtained, and the men are more careful not to risk losing their situations by misconduct.

So far as convictions obtained are a test of the efficiency of the force, it may be mentioned that, although the per-centage of convictions to cases reported was slightly less than in 1874, the per-centage to persons was the highest ever attained. In the recovery of stolen property, however, there was a falling off. There was much improvement in the working of the trans-Indus police.

North-West Provinces. Among the police in the North-West Provinces there was a marked increase in the number of departmental punishments inflicted, both on officers and men. No reason for this is assigned. On the other hand, the number of those who received rewards (excluding such rewards as they could legally claim) rose from 3,914 to 4,377. A comparison with the three preceding years shows a steady advance in this respect.

Central Provinces. The working of the force in the Central Provinces was fairly successful, and in some respects showed an advance on former years. There was a considerable decrease in departmental punishments, while 822 officers and men (out of a force of 8,513) were rewarded by promotion or money payments. Their relations with the people were generally satisfactory. The education of the force was attended to; at most head-quarter towns there is a good police school.

Berar. The Berar police did not show much efficiency in the detection of crime. Omitting nuisance cases, the number of cognizable offences was 5,521, in only 41·3 per cent. of which conviction ensued. In the recovery of stolen property there was still less success, the ratio being 26·02 per cent., while the previous year the per-centage was 39·4. The general appearance and bearing of the men, however, were favourably reported on. There was a decided decrease in departmental punishments; in judicial punishments, however, there was some increase. The reports of the rural police or village watchmen are stated to be yearly more favourable.

On the whole, the Resident considers that police administration during late years may be regarded as successful in the repression of violent crime, and in the surveillance exercised over the criminal tribes and predatory gangs, which have well nigh ceased to be a terror, as they formerly were, to the inhabitants of the province.

British Burma. The strength of the British Burma police was 6,756, and the steady increase in the purely indigenous element was gratifying. On the other hand the internal administration of the force showed very unfavourable results. No less than 2,053 left the service, of whom 515 were dismissed, 1,215 resigned, and 76 deserted. These frequent changes being most pre-

judicial to efficiency, the Chief Commissioner has taken measures to prevent their continuance. The magistrate will in future have full powers of direct control over the police of his district, and it is hoped that the relaxation of inter-departmental restrictions will result in better discipline and permanence.

The condition of the rural constabulary has for a long time been under the serious consideration of the Local Administration. This body consists of the village headmen, who, for almost nominal remuneration, never exceeding 10*s.* a year, have to exercise the most multifarious functions connected with revenue, sanitation, and police. Financial considerations have led to the postponement of a scheme for the reconstitution of the force.

JAILS. Bengal.

While careful attention is given in Bengal to the diet and clothing of prisoners, and to the sanitary condition of the buildings, the Government aim, at the same time, at rendering the labour and discipline so rigorous as to make prison life deterrent to the criminal classes. The Lieutenant-Governor strongly supports the mark system, the efficiency and advantage of which, he says, have been fully proved, whatever may be the individual views of some magistrates on the subject. It is hoped that the grant of extra marks to convicts teaching others will serve to promote the cause of education in prisons, which appears to be in a very backward state, as, out of a daily average number of 20,462, only 1,431 were under instruction during 1875.

In many of the Bengal jails the sickness and mortality were very great. The principal death causes were dysentery and diarrhœa. Many serious defects exist in the jails of the Lower Provinces, and overcrowding was a common evil. These defects were engaging the anxious consideration of the authorities, but very exceptional difficulties were involved.

The total number of deaths in all the jails of Bengal was 1,015, of which cholera occasioned 91, dysentery 360, diarrhœa 114, fever 85, pulmonary disease 146, and other diseases 219. The death-rate per cent. was 4·96, against 5·59 in 1874. The average death-rate for the five years immediately preceding 1875 was 4·94 per cent. The Behar jails were much less unhealthy than for many years past.

Madras.

Of the male convicts in Madras 80·21 per cent. were agriculturists and labourers. The proportion of prisoners who could read and write well was 7·42 per cent., while 82·36 per cent. were entirely ignorant.

The system of marks for earning remissions of sentence having been found successful in the central jails, it was, towards the end of the year, extended to the district jails. It is applicable to all whose sentences are of 18 months and upwards. From amongst those who earn a certain number of marks are selected the convict servants, who are, to a great extent, employed in the direction of labour and maintenance of discipline. Besides affording an incentive to good conduct, this system has resulted in economy and increased efficiency in the details of jail management. There has not yet been time to judge of its permanent effects in forming habits of industry.

It was in contemplation to establish a reformatory for juvenile offenders in the vicinity of Madras.

The health of prisoners in Madras generally was good; but the death-rate was 3·90 per cent., as compared with 2·68 in the preceding year. The increased mortality was chiefly due to cholera, of which there were 82 cases, with 40 deaths.

As had been the case in former years, more than half the whole number of deaths occurred during the first year of prison life.

Bombay.

Discipline in the Bombay prisons was better maintained; although the ratio of punishments was higher, the increase was due to greater strictness. Education is optional, except in the case of juveniles. The results of prison instruction during the year were not worthy of note.

The accommodation was considerably increased; additions were made to the Yerrowda and Tanna jails. In Guzerat alone there was still a deficiency, and there it was proposed to construct a central jail. No sickness was traced to overcrowding. A decrease in the number of admissions into hospital was accompanied with a marked rise in the death-rate from 2·3 to 3·3 per cent. of average strength; in the Presidency proper the rate was only 2·2, while in Sind it was 6·8. The state of health in the prisons is, however, considered to have corresponded generally with that of the free population. The jails in the city of Bombay are exceptionally healthy.

Punjab.

Owing to want of funds, it was not possible to do much in the provision of increased accommodation in the jails of the Punjab; and, on the other hand, very much damage was caused to jail buildings by the heavy floods of the year. The large jail at Umritsur was quite destroyed. Among the works which were carried out, a juvenile ward was added to the Rawulpindee prison.

Notwithstanding the general unhealthiness of the year, the average death-rate in prisons was only 3·19 per cent. of daily strength, which was a lower rate than that of the previous year, and far lower than that among the free population. Although, however, the mortality was less, there was more sickness than in the preceding year. This was caused principally by intermittent fever. The most fatal diseases were bowel complaints and remittent and continued fevers.

Of 19,985 persons imprisoned during the year, 96·7 per cent. were quite illiterate, and only 0·6 per cent. were able to read and write well. Of 19,973 released in the course of the same period, 81 per cent. came under the former class, and 3·1 per cent. under the latter.

North-West Provinces.

Attention was directed in the North-West Provinces to the system under which prisoners earn remissions of sentence by good behaviour. Of those who might have earned such remissions, 15,695 in number, only 598 actually did earn them. This the Inspector-General of Prisons considered a very small per-centage of interference with judicial sentences, while the disadvantage of any such interference was far more than compensated for by the good results on the discipline of the jails arising from the action of the rules. The Local Government, while accepting this opinion with satisfaction, urged the importance of the rules being worked with great caution, as any wholesale interference with sentences would be so great an evil that it could not be balanced by any secondary advantages in the way of jail discipline. A criminal might have sense enough to behave well in jail, but this would be no guarantee that he would not begin again to prey on society immediately on his release.

The question of establishing reformatories for juvenile offenders has been under consideration. Heretofore the latter have been, as far as possible, kept by themselves and instructed in the common jails, but the conditions which surrounded them were never of a satisfactory nature.

The year was, on the whole, marked by a considerable improvement in the health of prisoners in the North-West Provinces, and that notwithstanding the prevalence of cholera in the country, and the overcrowded state of many of the buildings. The average death-rate was 2·7 per cent. of strength.

Oude.

Of the persons imprisoned during the year in Oude, 97 per cent. were unable to read and write, being the same proportion as in former years.

The new system of educating prisoners, referred to in the last Report (p. 13), came into force in 1875–76, but very little could be done for want of teachers. In August a normal school for warders was established, and another for prisoners who may be eligible as teachers.

All the juveniles in the Central Prison were taught for three hours daily throughout the year, and their progress is reported to have been satisfactory.

The condition of health in the prisons of Oude was even more favourable than it had been in 1874, the death-rate being only 1·4 per cent. of the average jail population. Although cholera was epidemic throughout the province, the jails enjoyed a remarkable immunity from the disease.

Ajmere.

The number of prisoners under instruction in Ajmere showed a very considerable increase as compared with the previous year. The educational work having been placed under the superintendence of the Inspector of Schools, system and method were introduced. An efficient teacher and an assistant teacher were appointed, and the course of study was conformed to that laid down by Government for the district schools.

The sanitary condition of the prison was, as usual, good. The buildings were thoroughly ventilated, and there was no overcrowding. The dry-earth system was in use, and answered well.

Central Provinces.

In the Central Provinces the prisoners generally were quiet and well-behaved, except in attempting to shirk work and to enjoy forbidden luxuries. The great majority of the prisoners were totally unable to read or write, and, owing to the shortness of sentences, there was very little opportunity for imparting education during the period of incarceration. From the same cause imprisonment could not be expected to exert much reformatory influence, while good-conduct rules, and the hope of earning remissions of sentence, could only be extended to a very small proportion of the convicts. Juvenile delinquents were in the central jails kept apart from the adults, and were taught for a considerable part of each day, but in the smaller prisons separation was not always possible.

The health of the prisoners was on the whole good; there were rather fewer deaths than in the preceding year.

Berar.

The conservancy of the jails in Berar was carefully attended to; and the clothing and food were good and sufficient. The number of deaths in all the jails was 21, being 27 less than

in the year before. Notwithstanding the severe cholera epidemic in the Assigned Districts, the disease only entered one out of six prisons, namely, that at Akola, in which there were five fatal cases.

Education, in the case of the older convicts, is stated to be a mere form. The juveniles attended school for four hours daily, and were reported to be making good progress.

British Burma.

Owing to the jails of British Burma not having been built with reference to the population of the various districts, some of them are apt to be overcrowded, while a very large amount of transfers is rendered necessary.

The increasing number of re-convictions apparently points to some defect in the deterrent influences of prison life. It has been decided steadily to diminish the amount of extra-mural labour, which, although profitable, is found to be generally inoperative, being far from distasteful to the prisoners, while it affords frequent opportunities for escape and other abuses. Arrangements were also being made in central jails for the separate confinement of habitual criminals.

In the middle of the year a widespread organised plot to break out of the Rangoon jail was discovered through the agency of an informer. The inquiry which followed disclosed grave laxity on the part of the jail officers in the selection of prison officials, and in other respects. The Chief Commissioner immediately passed an order requiring all the higher grades of jail officers to pass a colloquial examination in the vernacular within a year of appointment, it being previously possible for convicts to arrange the details of an outbreak within the hearing of a jailor without being understood.

Among 8,292 prisoners admitted during the year, 54·87 per cent. were entirely illiterate, and 14·71 per cent. only were able to read and write well.

Civil Justice. Bengal.

In the Calcutta High Court the work of the original side continued steadily to increase. On the appellate side 6,815 appeals and applications were disposed of, against 7,453 in 1874.

The number of suits instituted in the Calcutta Court of Small Causes was smaller than during any of the three previous years, owing, apparently, to the interruption of business by the visit of the Prince of Wales. There was, notwithstanding, a decided increase in the total value of suits, indicating greater confidence on the part of the public in the judgments of the court.

With regard to courts in the interior, it was noticed in the last Report that the steady increase of business for some years past received a check in 1874. The causes of this depression having been removed, litigation resumed its ordinary course, and in 1875 the number of suits instituted exceeded that in 1874 by 43,960.

There was an increase of 8·6 per cent. in the number of registrations effected during the year. As yet but little recourse is had to registration which is not compulsory, its advantages not being appreciated sufficiently to outweigh the expense and inconvenience connected with it. Instructions have been given with a view to prevent delays in the transaction of business, and to afford every facility to the public.

Madras.

In the Madras High Court 541 suits were instituted, as compared with 817 in 1874. The number was less than in any year since 1866. The falling off was probably in some degree due to the raising of the table of fees since August 1874, although this measure did not so far affect the business at all to the extent that was expected.

The number of suits instituted in civil courts subordinate to the High Court was 207,393, showing a decrease of 8,144, of which 7,379 were small causes. During a portion of the year most of the Small Cause Courts were closed, the question of their abolition being under the consideration of Government. In the other courts business was interfered with by the prevalence of cholera, and also by the Prince of Wales's visit.

The aggregate value of the property involved in the suits disposed of during the year was much less than in either of the two preceding years. The proportion of contested suits to uncontested was nearly 2 per cent. higher than in those years.

The objects aimed at by the system of registering documents are being successfully attained in the Madras Presidency. The number of registrations effected during 1875–76 exceeded that of the previous year by 11·5 per cent., and was the highest on record. The total value of the property concerned was 8,741,577*l.* The proportion of optional registrations was also increasing; in 1875–76 there were 82,832 deeds so registered, against 154,430 the registration of which was compulsory.

Bombay.

Civil litigation in the Bombay Presidency increased in comparison with 1874, but, omitting that year, when it was at an exceptionally low ebb, there was a smaller number of cases than there had been for several years past. There was a net increase of 6,570 suits instituted in the subordinate judges' courts, but this increase was confined to Sind, where it was occasioned by the disastrous effects of excessive floods. Of the total suits, 91 per cent. were for

money, and of these 98 per cent. were for sums of 50*l.* and under. The average duration of contested suits was 205, and of uncontested 162 days, against 128 and 126 respectively in 1874. The reason of this increase appears to be that the cultivators, who have long been the victims of extortion by the money-lenders, being restrained from using violence against their oppressors, now adopt the plan of denying their bonds and hotly contesting suits brought against them. The diminution in the number of suits is attributed, in great measure, to the creditors being less inclined to lend, owing to the difficulty they find in recovering their claims. Applications to execute decrees continued to be very numerous. It is satisfactory to find that imprisonment was less resorted to; attachments and sales of moveable property also very considerably diminished. On the other hand, attachments and sales of immoveable property were only slightly fewer than in 1874, from which it is inferred that the ryots had little left to part with except their interest in the land.

Registration of documents, which in the previous year had shown a very great decline, slightly revived in 1875–76. The increase was largest in Sind, for causes connected with the floods.

Punjab. The steady increase of litigation in the Punjab since the year 1870 received a slight check in 1875, owing, it is believed, to exceptional causes, namely, the extremely unhealthy season, which for some time virtually closed the civil courts in some districts, and the damage caused by the floods and excessive rainfall, which occupied the attention of the people and absorbed their savings. The increase will, in the opinion of the Local Administration, continue in future years proportionally to the increase of population and the prosperity of the country. It is considered that this free resort to the Law Courts for the settlement of cases which would have been settled in old times by violence or not at all is not an unfavourable sign, but that it rather means an increasing confidence of the people in the integrity of the courts, and an advance of prosperity. Compared with the judicial statistics of England, the amount of litigation in the Punjab is not excessive.

Of the total number of cases, 36 per cent. were contested; and of the latter, 71 per cent. were decided in favour of the plaintiff. The average duration of contested cases was 23, and of uncontested 17 days. More than half the litigation was for sums not exceeding 1*l.*, and about one-sixth for sums of less than 10*s.*

For the first time since the formation of a regular department of registration in this province there was an increase instead of a decrease in the number of documents registered; and this increase occurred in optional as well as in compulsory registration.

North-West Provinces. The civil courts of the North-West Provinces are of two classes, those immediately subordinate to the High Court, and those under the direct control of the Government; the latter being those comprised in the districts of Kumaon, Gurhwal, and Tehree. In the former class the number of suits in 1875 was 98,422, being 1,558 in excess of that of the previous year. In some districts litigation increased, and in others it diminished. The contested cases were 38 per cent. of the total disposed of. In the latter class of courts there was a decrease of litigation, which is explained partly by the prevalence of sickness in Gurhwal, and partly by the temporary nature of the causes of the increase in 1874.

Oude. The total number of suits instituted in Oude during 1875 was 67,928. This was 2 per cent. higher than the number in 1874, the increase being chiefly in rent suits. There was an increase of 27 per cent. in the value of the suits disposed of, while the cost increased by 11 per cent. only. The proportion of contested cases was slightly higher. The average duration of contested cases was six days less than in the previous year, and of uncontested, one day less.

Ajmere. In Ajmere the amount of civil litigation continued to be remarkably large, but this feature is stated to have co-existed during the last few years with a marked degree of general prosperity. The suits were mostly on bonds for money due, and their average value showed a material decrease. Only 27·88 per cent. of the cases were contested, and in only 367 out of 1,846 contested cases was judgment given for the defendant. The admission of the execution of a bond is legally regarded as sufficient ground for passing a decree, without any respect being had to the circumstances under which the bond was executed; and the bonds are generally composed by the creditor in a language foreign to the debtor, and merely signed or marked by the latter. This condition of things appears to require some remedy.

Central Provinces. In the Central Provinces the number of civil suits (78,088) was higher than in any previous year, but their value was small, and they were ordinarily of a very simple nature; 84 per cent. of the whole were for money due on a bond or other contract.

The average duration of suits showed improved action on the part of the Judges, being, in the case of contested suits, 24·3 days, and of uncontested, 16·3 days. Of all suits disposed of 73·3 per cent. were uncontested.

The fact of the large number of unexecuted decrees, which was commented on last year (*see* Report, p. 14), was again apparent in the statistics of 1875. The Chief Commissioner infers that a decree is by many suitors sought as an investment, not as a means of obtaining the satisfaction of a claim.

Berar. There was a decrease of civil suits in every district of Berar but one, a fact which was probably due to the cholera epidemic. The average value of the suits was a little under 10*l*. The per-centage of contested cases showed a falling off, particularly in one district, where a court presided over by a Native Judge disposed of no less than 3,854 suits, of which only 16 per cent. were contested. The average duration of contested suits was 66 days, showing a want of promptitude generally in the disposal of cases.

The sale of land in Berar in execution of civil decrees requires the sanction of the Commissioner in the case of self-acquired property, and of the Resident in the case of ancestral lands. The effect of this wholesome provision is apparent from the fact that, out of 214 cases in which sales were recommended by the Civil Courts, in only 138 instances were the sales actually effected.

British Burma. Civil litigation is stated to be year by year expanding in British Burma; 31,998 suits were instituted in 1875 against 29,935 in 1874. Part of the excess was due to the formation of the Thonkwa district, and the consequent augmentation and increased accessibility of the courts in that part of the country. The increase of work was not accompanied with additional delay, contested cases having on an average only occupied 10·9 and uncontested 5·8 days. The Chief Commissioner thinks that a further diminution in this respect would be hardly desirable.

The Burmese judges, while their standard of legal attainment is but low, resort in a great degree to national code and custom, and their administration of justice appears from the results to be very popular. Of their decrees only 11 per cent. were appealed against, and 4 per cent. reversed.

III.

FINANCE.

REVENUE AND EXPENDITURE.

The following is a statement of the Ordinary Revenue and Expenditure in India and England, compared with the three preceding years:—

—	1872–73.	1873–74.	1874–75.	1875–76.
	£	£	£	£
Revenue	50,219,489	49,598,253	50,570,171	51,310,063
Expenditure	46,343,316	49,968,569	49,006,412	48,665,808
Guaranteed Interest, less net traffic receipts	2,110,501	1,437,352	1,244,562	975,310
	48,453,817	51,405,921	50,250,974	49,641,118
Surplus	1,765,672	—	319,197	1,668,945
Deficit	—	1,807,668	—	—

The principal heads of Revenue are shown in the following summary:—

—	Land Revenue, including Fisheries.	Opium.	Salt.	Excise.	Customs.	Stamps.
	£	£	£	£	£	£
India (general and political)	68,678	—	93,019	18,137	—	23,550
Madras	4,545,013	—	1,353,789	633,901	307,962	501,971
Bombay	3,690,354	2,549,497	880,441	397,528	715,691	466,986
Bengal	3,776,506	5,921,928	2,561,553	608,818	1,076,364	935,019
Punjab	2,001,117	—	790,518	95,478	92,667	247,293
North-West Provinces	4,245,745	—	528,510	223,614	39,204	354,179
Oude	1,407,431	—	1,487	79,102	20,759	94,042
Assam	337,358	—	—	141,456	—	51,572
Central Provinces	607,885	—	19,066	135,639	10,151	97,261
British Burma	823,655	—	16,032	159,559	458,591	63,495
Total	21,503,742	8,471,425	6,244,415	2,493,232	2,721,389	2,835,368

The chief items under Ordinary Expenditure were as follow:—

	£
Payments in realization of revenue, refunds, &c.	9,483,279
Army	15,308,460
Interest on debt	5,178,108
Public works, including supervision and cost of land for guaranteed railways	2,907,795
State railways	214,713
Loss by exchange on transactions with London	1,429,658
Famine relief	508,554
Allotments for provincial services	5,153,652
Administration	1,697,365
Law and justice	2,336,477
Superannuation allowances, &c.	1,939,305

The Extraordinary Expenditure included—Irrigation 1,105,445*l.*, and State Railways 3,165,184*l.*

OPIUM AND EXCISE. Bengal.

The number of chests of Bengal opium sold during 1875–76 was 45,510, against 45,000 in 1874–75; the price realised per chest was Rs. 1,259 . 2 . 11, against Rs. 1,207 . 0 . 4; and the net revenue amounted to 3,705,170*l.*, against 3,264,266*l.*

The consumption of opium within the province remained stationary, but in the revenue there was an increase of 1,916*l.* A beneficial check on consumption is shown to result from the raising of the selling price. In Balasore the quantity consumed diminished from 129 to 122 maunds, while the revenue increased from 9,579*l.* to 10,030*l.*

In the preceding year there had been a great falling off in the excise revenue, owing to the

scarcity in Northern Bengal and Behar, but the prosperous season of 1875–76 entirely compensated for the temporary loss. The revenue of the latter year amounted to 608,818*l.*, largely exceeding that of any previous year. The increase was principally under the heads of country spirits, rum, and ganja. This improvement of revenue was concurrent with a maintenance of the principles which were expounded at length in the Report of last year (p. 17). It was obtained, not by the multiplication of facilities for obtaining liquor and drugs, but partly by increased consumption following on the prosperous condition of the people, and partly by the issue of licenses at higher rates and the raising of the prices of opium. The number of licenses for the sale of country spirits was reduced from 5,173 to 4,426; those for ganja from 4,394 to 3,340; and licenses of other kinds were likewise diminished in number.

The consumption of ganja decreased throughout Orissa, where a growing taste for it had been noticed during the last few years. The alleged prevalence of intemperance among the Sonthals occupied the attention of the Government, and the licenses for the sale of country spirits in the Sonthal Pergunnahs were reduced from 409 to 221, while the actual consumption diminished from 99,666 to 67,381 gallons.

An increase appeared in the consumption of spirits manufactured in India by the English method, which was probably due to the raising of the duty on imported spirits by the Tariff Act of 1875. The Lieutenant-Governor observes that, in his decided opinion, the administration of the Excise Department rests upon a secure and satisfactory basis; the revenue is large, and is collected punctually and at a very small cost; and the department is conducted in accordance with the principles of morality which have been laid down by Government for the guidance of its officers.

The imports of beer and spirits were much smaller than in the preceding year, but there was a slightly increased import of wines, and, owing to the increase of the tariff rates, the customs revenue derived from liquors improved from 122,351*l.* to 128,154*l.*

Bombay.

The Bombay opium revenue, which in the preceding year had been abnormally high, was less in the year under report by about 400,000*l.*; the pass fees realised 2,549,435*l.*, besides 62*l.* for confiscations and miscellaneous receipts. The exports were, however, close upon the average of the four previous years. The China market was very much depressed. The exportations to that country and other places were as follow:—

China	41,517	chests.
London	30	„
Liverpool	30	„
Zanzibar	7	„
Mauritius	2	„

The amount derived from fees for selling opium within the Presidency was 14,709*l.* This was an improvement on 1874–75, which was due to the substitution, in certain parts, of the practice of selling through licensed vendors for the system formerly prevailing of selling departmentally. Until 1875–76, there had been for some years a steady decline in the receipts from the inland traffic.

The revenue was again collected without default, and at a cost of less than $\frac{1}{4}$ per cent.

There was an increase in the excise revenue from spirits. The question of raising as much as possible the duty on country spirits, in consequence of the enhancement by the Tariff Act of the duty on spirits imported from abroad, was engaging the attention of the Government.

Central Provinces.

The system adopted in the Central Provinces (*see* last Report, p. 18) of supplying Government opium to licensed vendors, which was previously in force throughout the Chutteesgurh Division, was extended during this year to the whole of the Nagpore Division, and to the district of Seonee. The experience of the year justified the conclusion already arrived at that the system is a financial success.

There was a further increase in the excise revenue on spirits, which was the result partly of better administration, but partly also of the continued prosperity of the people.

Salt. Bengal.

The receipts from salt in Bengal showed a very considerable falling off as compared with those of the preceding year, namely, from 2,671,768*l.* to 2,550,190*l.* The bulk of the decrease (106,468*l.*) was in the amount realised as customs duty. In the actual importations there was a large increase; the amount imported into Calcutta was the largest on record. But the quantity cleared for consumption was less than in the previous year, owing, it is stated, to the reduction of duty on salt from Bombay. A quantity sufficient for more than six months' consumption for the whole of Bengal remained in stock at the close of the year.

There was also a reduction of 16,000*l.* under excise duty. The decrease of manufacture occurred entirely in Pooree, and was attributed to heavy rains, large stocks in hand, and discouragement caused by the invasion of Ganjam salt. The imports from Ganjam, as compared with the two preceding years, rose from 1,419 and 11,638 to 114,338 maunds.

The anticipations referred to in the last Report (p. 19) that the Pooree manufacture is tending towards extinction are thus further confirmed. This circumstance does not, however, affect the Imperial revenue, which indeed is benefited by the enhanced duty on Ganjam salt; the only sufferers are the Pooree manufacturers, for whose relief measures were still under consideration.

The consumption of salt in Bengal appeared to be considerably above the rate of 10 lbs. per head; and there was no insufficiency anywhere except in the districts of Behar, where the population is impoverished, and illicit manufacture is carried on.

Madras. The net revenue realised from salt in Madras was 1,166,752*l.*, or 20,481*l.* more than in the previous year. The causes of the increase were the enhancement of price in certain districts, the demand in the Central Provinces owing to the abolition of the Inland Customs line, and the facilities afforded to the manufacture and sale by the absence of rains, the extension of the South Indian Railway, and the prohibition of the use of earth-salt. Prior to 1875 the Government selling price for salt throughout the Presidency was fixed at Rs. 2 per maund, but an Act passed by the Government of India in the commencement of that year authorised the Local Government to settle the price from time to time in the several districts at such a rate as shall suffice to cover the duty, which under the old system had been found to fall unequally in different parts of the Presidency.

The question was under consideration during the year of abolishing the Government monopoly in salt, and substituting a system of excise similar to that prevailing in Bengal and Bombay. A Commission was appointed to investigate the subject.

Another question raised in connexion with salt was the apparent pressure of the duty on the fish-curing industry, and the consequent use by the people of insufficiently cured fish. The industry appeared moreover to be a rising one, and, with a view to encourage its development, it was determined to set apart certain yards within which the necessary amount of salt should be supplied at about cost price. The extension of this system will depend on the success of the experiment.

Bombay. All opposition to the Bombay Salt Act (described in last year's Report, p. 19) is stated to have been overcome. The arrangements for licensing owners of salt works, for bagging salt, and for the examination of consignments at floating preventive barges, worked with smoothness and success. These reforms have provided an effective check against the fraudulent removal of salt from the works.

There was a considerable increase in the net salt revenue, namely, from 747,203*l.* to 824,339*l.* This was in great measure due to the new Salt Act, and to the system of compulsory prepayment of duty on exportations to Bengal and Madras, which had been brought into force in the middle of the preceding year. Excluding from the comparison certain items affected by the recent measures of Government, the figures shown in the margin * are considered to set forth a correct view of the progressive increase of the gross collections during recent years; and the increase for the year under report over that preceding it is thus estimated at 50,628*l.* The result appears to confirm the wisdom of the measures referred to, which also contributed to the increase of consumption within the Presidency. The latter averaged 11·3 lbs. per head, against 10·4 lbs. in 1873-74, and 9·7 lbs. in 1872–73.

	£
*1871–72	635,386
1872–73	682,010
1873–74	729,814
1874–75	715,101
1875–76	765,729

The prepayment system caused much less disturbance to trade than had been anticipated. It did not by any means, as had been feared, destroy the Calcutta trade, which, it is believed, will in a year or two return to its former dimensions.

The quantity of salt manufactured during the year fell short of the produce of 1874–75 by 2,790,325 maunds. The cause of this was the strike among the Konkan manufacturers in connexion with the new Act. Since the year under review manufacture is reported to have again steadily progressed; stocks were abundant, and prices very low.

In quality the salt made in 1875–76 is stated to have been superior to any previous crop, owing, in some measure, to the emulation excited by the offer of rewards by Government.

Mention was made last year of the serious falling off in exports of Baragara salt to Malwa, owing to its being unable to compete with the untaxed Rajpootana salt. In view of enabling it to compete on favourable terms with the latter, the Government of India accorded their sanction, shortly before the close of the year, to a proposal to supply this salt to Holkar at Rs. 2.4.0 per maund, to be delivered at the terminus of the Indore State Railway. The remission of duty amounts to Rs. 0.14.1 per maund.

Central Provinces. The experience in the Central Provinces of the year ending May 1876 in regard to the effect of the abolition of the Inland Customs line (*see* last Report, p. 20) was altogether satisfactory. The duty paid at the salt pans in Madras on the increased importation into

Chutteesgurh of 79,060 maunds of eastern salt exceeded the amount of the revenue renounced at the Customs line, besides which the saving of establishments was considerable; the gain in a political sense was very great, and the economical advantage to the people was shown in the increased sales throughout the province.

The total actual salt revenue showed some falling off, owing to reduced importations of duty-paid salt from the western coast.

BENGAL ROAD CESS.

There remained at the end of 1875–76 only four districts (Cooch Behar, Chittagong Hill Tracts, Sonthal Pergunnahs, and Singbhoom) to which the Bengal Road Cess Act was not extended. For the year ending 30th September 1875 the demand on account of the cess on lands and mines was 93,051*l.*, and on houses 6,708*l.*, making a total of 99,759*l.* The collections under the first head (including arrears) amounted to 90·81 per cent.; under the second head they were not so satisfactory, reaching only about 69·3 per cent., which was attributed to the variations arising from the poverty, death, or evasion of the householders.*

As an adjunct to the provincial finance the Lieutenant-Governor is of opinion that the importance of this tax (of which the yield is expected to amount to 300,000*l.* a year) can hardly be overrated; and it is apparently paid without a murmur.

DEPRECIATION OF SILVER.

The London price of bar silver per ounce standard was about 57*d.* at the beginning of the year under review, but at its close was as low as 52½*d.* As a further decline seemed probable, and our Indian interests were threatened to an alarming extent, a Select Committee was appointed by the House of Commons on the 3rd March to "consider and report upon the "causes of the depreciation of the price of silver, and the effect of such depreciation upon "the exchange between India and England." The result of the Committee's investigations, together with the further fall and subsequent improvement of the silver market, will be treated in the next Report. Meanwhile it may be mentioned that Sir R. Temple, writing in 1876, observed that, while the fall injuriously affected the Government, and many servants of Government and others living on fixed incomes, and while it caused those general feelings of uneasiness which always arise in connexion with apprehended retrenchments, it yet left many great interests quite uninjured, and to some it actually produced advantage. The export trade, on the whole, was benefited; prices in the interior did not rise; the landed interests were not affected; and the Natives generally suffered neither loss nor harm. The rise in the value of produce from this cause must, however, he adds, be only a question of time; the higher prices paid in Calcutta must soon influence those paid in the interior at the large marts, and ultimately even the petty transactions between the local dealers and the cultivators themselves.

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* In the last clause under this head in last year's Report (p. 21)—

For 1874–75 read 1873–74 (*i.e.*, year ending September 1874).

£		£	
For 74,213	read	80,459	(demand).
„ 57,635	„	60,749	(collections).
„ 8,918	„	10,715	(remissions).

IV.

LAND ADMINISTRATION.

GREAT TRIGONOMETRICAL SURVEY.

The great triangulation of India, the basis on which rests the entire fabric of the surveys of the country, is steadily approaching completion. During the year under review two series were brought to a conclusion,—the Jodhpur Meridional Series and the Ceylon Connecting Series,—by means of which complete unity will be introduced between the India and Ceylon Surveys. The topographical operations of the Department were carried on in Dehra Doon, in Kattywar, and in Guzerat.

TOPOGRAPHICAL SURVEYS.

The year 1875–76 saw the commencement of a survey of the province of Mysore, our geographical knowledge of which had previously been based on a rude survey made in the early part of the century. The cost of this survey is borne by the revenues of Mysore.

The Topographical Surveys have in the course of the last 16 or 20 years progressed so much that the areas now remaining for survey comprise for the most part thinly inhabited and non-revenue yielding tracts. The completion of a first survey of all India is not very distant. But there is still much to do in the way of revision, especially in that portion of the Atlas sheets embracing part of the Bombay and Madras Presidencies, which was based on old and inaccurate surveys. Measures have already been adopted by the Madras Government for the utilisation and reduction for the Atlas of India of the labours of the Madras Revenue Survey.

The North-West Provinces also require to be re-surveyed on accurate principles.

Compared with those of 1874–75, the results of 1875–76 show a small decrease, due partly to the reduction of establishments ordered by the Government, and partly to the hostile attitude of the Nagas, whose treacherous murder of Captain Butler, the Political Agent, in the early part of the season, necessitated a premature retreat of the surveying party.

REVENUE SURVEYS. Government of India.

The Revenue Survey operations under the Government of India were carried on by 17 different parties. Two of these were engaged in the Dehra Ismail Khan and Rohtak districts of the Punjab, four (on cadastral surveys) in the North-West Provinces, six in the Lower Provinces, two in the Nassick, Ahmednuggur, Poona, and adjacent districts of the Deccan, one in Assam, and one on a demarcation of the frontier line between Oude and Nepal. The total outturn of work amounted to 11,175 square miles on the several scales of 2, 4, 16, and 32 inches to the mile. The cost of the cadastral survey averaged 5 as. 1 pie per acre.

Efforts have been made by the officers in charge of the Deccan Surveys to utilise the Bombay Settlement maps as far as possible for incorporation in the Topographical Survey sheets, but the result so far has not been very satisfactory.

Madras.

Revenue Survey operations were carried on in several districts of the Madras Presidency. The outturn of work compared favourably with that of previous years, notwithstanding the general unhealthiness of the districts in which the parties were engaged.

Bombay.

The operations of the Revenue Survey Department in Bombay amounted to 1,843,782 acres surveyed, and 1,552,219 acres classed. Besides the increase of revenue, a most important consequence of this work is the definition of tenures and rights. Already good work has been done in this direction, and eventually an amount of evidence will be collected which will be invaluable to the courts.

Punjab.

In the Punjab, besides 3,740 square miles of boundary survey prepared in advance, and 538 linear miles of levelling, the total return of area completely surveyed during the year was 2,861 square miles. One party was employed in the frontier districts of Dera Ismail Khan and Bannu, and completed 1,951 square miles; and in the Gurgaon and Rohtak districts the area so surveyed was 910 square miles.

Berar.

The establishment in Berar classed during the year 609,098 acres, being an increase of 18,869 over the work done in the preceding year. In the case of 1,561 fields submitted to test the discrepancies brought to light were all very trifling. Taking into consideration the varieties of soil in the Woon taluka, this result is regarded as extremely satisfactory.

Coorg.

The Survey Department in Coorg was engaged during the year in the preparation of the topographical map of the province, and in surveying and demarcating State forests and such

portions of waste land as had been applied for. The quantity of work performed was largely increased at a considerably reduced cost.

LAND REVENUE. Bengal.

There were 618 settlements effected in Bengal during the year, of which only 10 were original, the remainder consisting of summary settlements and re-settlements. The increase of revenue secured was 3,305*l.* The settlement of the Sonthal Pergunnahs, though unavoidably summary, conferred a substantial benefit on the agricultural community, so that all classes were disposed to accept it without opposition.

The demand for the year on account of land revenue was 3,455,593*l.*; arrears being added, the amount was 3,860,877*l.* Of this the collections amounted to 95 · 58 per cent.

Madras.

The net demand on land held by ryots in the Madras Presidency was 4,649,028*l.* The collections on land of all descriptions amounted to 4,539,657*l.*, being 92,405*l.* less than the collections of the previous year. Extensive remissions were granted in consequence of a very unfavourable season.

Bombay.

In Bombay the land revenue for collection on account of the year ending 31st July 1876 was returned at 2,734,707*l.*, and the amount collected (including outstanding balances) was 2,731,838*l.* No returns were received from Nassick and Rutnagherry. Remissions in the the Poona and Sholapore Collectorates amounted to 18,897*l.*, being a reduction of about 15 per cent. Prices there showed a decided upward tendency during the year.

The revenue was collected with even less pressure than in 1874–75, and that notwithstanding the unfavourable season. The number of distraints was less by 1,000 than in the previous year.

The revised settlements resulted in the assessment of 23,635*l.* in excess of past collections. The enhancement amounted to 51 per cent. in 138 villages of the Dharwar Collectorate, to 45 per cent. in part of the Nassick taluka, where the Great Indian Peninsula Railway has brought an accession of wealth, and of 34 and 27 per cent. in other districts.

Punjab.

The unfavourable season and heavy floods in the Punjab had their effect on the collections of land revenue, which amounted to 1,897,057*l.*, being 98·7 per cent. of the demand, against 99·1 per cent. in the preceding year. This amount is exclusive of 4,145*l.* collected on account of outstanding balances. The enhanced assessments in the Hazara and Dera Ghazee Khan districts, which had been in force for nearly three years, continued to be collected with great ease.

The net increase of assessment for the year 1875–76 due solely to revisions of settlement was 42,276*l.*, which was nearly equal to the net receipts from the same cause from the commencement of the revisions up to the close of 1874–75, the amount of which was 47,673*l.* "In fact," the Lieutenant-Governor observes, "the recent settlements may now be said to be "turning the scale, and making settlement operations, which involved at first a considerable "loss to Government, profitable."

North-West Provinces.

The collections in the North-West Provinces for the revenue year ending 30th September 1875 amounted to 4,185,231*l.*, against 4,165,494*l.* in 1873–74. The result of the assessments declared during the year was an increase to the revenue of 21,138*l.*

A new system of village records was introduced tentatively in some lately re-settled districts, and, having been found to work well, was to be extended to all districts under temporary settlement. By this system village accountants are required to make tours of villages under their charge when crops are on the ground, and note in writing the circumstances of tenure, rent, and agriculture. The chief aim of the system is to keep up accurate statements, so as to avoid the recurrence of extensive and costly revisions of records; and it will at the same time provide for the agriculturists more trustworthy registers of their rights, and for the Government a valuable collection of agricultural statistics.

Oude.

The current demand for land revenue in Oude was 1,412,455*l.*, of which 1,339,314*l.* was collected, 50,410*l.* remained outstanding, and the remainder was either remitted or refunded. Of the arrears outstanding at the commencement of the year (128,165*l.*), 54,730*l.* was collected, and 6,649*l.* remitted.

The summary assessment of the Gonda district was enhanced 56 per cent. by the revision which was completed during the year.

Central Provinces.

The land revenue collections in the Central Provinces for the year ending September 1875 amounted to 612,935*l.*, and the outstanding balances were small. Although in some districts money was scarce, no difficulty was experienced in collecting the revenue.

Berar.

In the Assigned Districts the demand amounted to 636,572*l.* The improvement in the revenue was due, not to increased assessment, but to more correct measurement, and also to the encouragement which cultivation received from a settlement on favourable terms. The effect of the new settlement in the Yeotmal taluka was an advance in the revenue from 9,972*l.* to 12,759*l.*

British Burma.

The land revenue demand in British Burma was 445,055*l.* against 440,704*l.* in 1874–75. A larger area of land was brought under cultivation during the year, but the large amount of remissions due to devastating floods in the Irrawaddy delta reduced the actual revenue by 1·60 per cent. as compared with the net realizations of the preceding year.

LAND TENURE. Bengal.

There was no recurrence during the year of agrarian disturbances in Bengal, but opinions differed as to whether the quarrels had been really composed. To many it appeared probable that questions were at issue between landlords and tenants which must sooner or later break out into serious dissension; in fact, since the close of the official year an outbreak of this nature did occur at Furreedpore. With a view to prevent such disturbances, an Act was passed enabling the Government to empower the land revenue officers summarily to decide any serious rent disputes, and there will in consequence be no difficulty in taking prompt and effective action in any such cases in the future.

Another important measure was in progress, but was not finally sanctioned during the year under review, namely, an amendment of the rent law, with a view to determine the principles on which the rent of land should be fixed. The zemindars feel that they are not getting their fair share of the increased value of the produce of the land, while they are uncertain as to the best way of asserting their claims, and the intricate question is often involved whether or not the value of the land and its produce has increased through the agency or at the expense of the ryot. The problem to be solved was how to satisfy the just claims of the landlord, while leaving a liberal margin of profit to the ryot. After much consideration, Sir R. Temple determined to introduce a Bill (which met with the general assent of the Government of India) providing that, in cases where an occupancy ryot is liable to enhancement of rent, one of the two following alternative principles should be adopted for regulating such enhancement, —either (1) the rent rates paid by non-occupancy ryots should be taken as representing the market rates, and a favourable discount (say 20 to 25 per cent.) from such rates be allowed to the occupancy ryot; or (2) the rent of the occupancy ryot should be calculated at a certain proportion (say from 15 to 25 per cent.) of the value of the gross produce. It was, however, determined that no claims for the abatement of existing rents should be entertained in consequence of the new rules. Objections have been made to the second alternative, on the ground that in some parts of Bengal the actual rents levied amount to much more than 25 per cent., reaching even 50 per cent., while in other parts they stand at very much less than 15 per cent. of the produce. The answer to this objection is that in the former class of cases the existing relations between the landlord and tenant will remain untouched, while in the latter (in the absence of any special agreement, such as the original payment of a premium in consideration of a nominal rent) it is quite right that the tenant should not continue to possess an unfair advantage, but that his rent should be gradually raised to the prescribed standard. In the valuation of produce due allowance will be made for the skill, capital, and labour bestowed by the ryot on the superior kinds of staples, such as tobacco, opium, indigo, &c. It is hoped that the result of this measure will be a contented and prosperous peasantry, having heritable tenures with equitable rents, which cannot be enhanced except by the decision of a court of justice, and with full security of enjoying the fruits of their labour.

It appeared from the road cess returns that the rent roll payable to the intermediate tenure-holders was often considerably more than that paid to the superior landlord. While these returns thus showed the prosperous condition of the middlemen, they also pointed to the fact that the profits of the land are gradually slipping out of the hands of the zemindars.

An Act was passed in April 1876 for the compulsory registration of all proprietary titles in lands throughout Bengal. A regulation of 1793 directed that the name of the proprietor of each estate should be entered in a register. This register was not properly kept up, and, as the legislature had during recent years been imposing on proprietors of land many new duties, the performance of which could not be enforced without the responsible person in each case being known, the above measure was determined on for supplying this deficiency. There were no less than 150,000 estates on the revenue roll, besides a vast number of petty revenue-free estates.

Madras.

The "ryotwari" tenure is that which prevails over four-fifths of the Madras Presidency, and is the most familiar to the people. Under it the State, without the intervention of any middleman, collects its tax direct from the cultivator, whose right of property, as long as he pays the land-tax, is indefeasible. The tax is fixed on each field, and additional charges are made when water is supplied to irrigate a second crop on land taxed as growing only one crop, or when it is supplied at all to land taxed as not being supplied. Under this system the revenue expands with increasing population and cultivation.

The remainder of the land is permanently settled, and in most cases the rights of the State have been made over to zemindars. Since the beginning of the settlement the value of these estates has doubled, but the Government derives no benefit.

An " inam " is the assignment by Government of the land tax, or a portion of it, to an individual or an institution, or a grant by way of remuneration for the performance of certain duties. The conditions under which such grants may lapse to Government are various. In 1858 a Commission was appointed to examine the titles of the possessors of inams, and to enfranchise them by commuting, for a moderate quitrent, the right of Government to prevent alienation or to resume. The work of this Commission is being gradually completed. In 1875–76 there were issued 166 title deeds, being 20 less than in 1874–75, but in the amount of quitrent charged there was an increase.

Bombay.

The Bombay Administration Report contains the following remarks relative to the assessment of land in that Presidency :—

" The more absolute the tenure of land the better, and perhaps eventually the last traces " of Government as a shareholder will vanish, and that which is now paid to a joint owner " entitled to extra profits and liable to unusual losses and interested in the preservation of a " culturable soil may in reality become a land tax paid by the owner irrespective of the uses " of the land, and liable to increase or decrease according to the exigencies of the State, or " perhaps secured from more than a certain rate of increase. But such a position is so distant " as to be practically impossible, and, therefore, all Government can do now is from time to " time to lay down a theory to guide revision, as has been laid down to guide original assess- " ment. If it is asked to protect that theoretical basis for a period sufficiently long to meet " the views of those who desire to lengthen the present leases, so that the net result might be " that the assessment would be fixed for a very long period, with liberty to Government to " increase that assessment within a certain limit at stated intervals of years, the answer is that " it seems impossible at present to make a nearer approach to permanent settlement, or to " put Government more into its proper position of collecting sufficient for the maintenance of " Government without itself having any ownership in the property of those contributing. The " reason for not going further is obvious. If an enlightened people found they had mistakenly " cut off the supplies necessary to their national prosperity, they would before long insist on " those supplies being secured ; in India the revenue has to be raised from a people who have " no national spirit, who, however, contribute readily enough in the accustomed way, but who " would bitterly resent new schemes of taxation, however desirable, economically or financially, " or even the re-imposition of burdens once relieved."

Punjab.

The following statistics have been arrived at respecting the tenure of land in the Punjab. Of the total area 16 per cent., and of the cultivated area 44 per cent., is held by tenants, showing that a large proportion of the land is held by cultivating proprietors. The number of tenants with rights of occupancy amounts to 30 per cent. of the whole number ; of these, 78 per cent. pay rent in cash, and 22 per cent. in kind, while of tenants-at-will 52 per cent. only pay in cash.

In the total number of suits under the Punjab Tenancy Act there was an increase, which however occurred entirely in suits brought by landlords against tenants ; in those instituted by tenants there was a considerable decrease. In the former the increase was in regard to suits for enhancement of rent of tenants with occupancy rights, and for ejectment of tenants without such rights ; in the latter the decrease related to suits for establishment of rights of occupancy and for resisting ejectments. On the whole, the Act continued to work smoothly and well.

Central Provinces.

The questions connected with the Chanda and Nimar settlements were finally set at rest, the orders of the Government of India referred to in last year's Report (p. 27) having been carried into execution. Under these orders, the tenure of all cultivators is to be a permanent one so long as they pay the rent fixed on their holdings. A maximum rent rate is to be determined for each quality of soil, which cannot be exceeded, but within which limit the malguzars may demand what they please, only one enhancement, however, being allowed during the currency of the settlement. On the other hand, cultivators will not be allowed to mortgage or transfer their holdings without the permission of the malguzar, except a person who has become a co-sharer by inheritance or who would inherit the holding on the cultivator's death. Full power to improve their holdings is secured to all cultivators.

INDEBTEDNESS OF THE CULTIVATING CLASS.

Bombay.

In the early part of 1875–76 several riots occurred in the Poona and Ahmednuggur Collectorates, caused by peasants rising against the oppression of the sowcars or money lenders. These events were followed by an official inquiry, the results of which were under consideration at the end of the year. The relations between debtor and creditor were shown to be most unsatisfactory, but how to place them on a better footing appears to be a question requiring the greatest caution, lest by measures devised for the benefit of the cultivator his right of contract should be so crippled as to induce unwillingness in the sowcars to make advances to him, and so to discourage investment in land. In regard to the recent special pressure upon the ryots the Bombay Government think that, in well-deserved pity for their condition,

the force which pressed upon the creditors themselves has been somewhat lost sight of. There must either have been a demand for money which they could not meet, or lending must have ceased to be profitable. The disturbance in the circulation and the depression of trade explain the urgent want of money on the part of the sowcars, although this is, of course, no justification of their heartless and unscrupulous action towards their debtors. It is hoped that some amelioration may be effected in the position of the ryots by a modification of the present system of civil procedure.

It is a curious circumstance that, notwithstanding the state of things above referred to, the ryots decidedly prefer dealing with the sowcars to receiving advances from Government. The latter, with a view to encourage agricultural improvements, offer advances, on good security, at interest generally of $6\frac{1}{4}$ per cent. per annum, and repayable over a series of years, but this liberality is not readily taken advantage of. Even when, after floods at Ahmedabad, Government sanctioned the advance of 1,000*l.* to poor cultivators without any interest at all, no one availed himself of the offer, the fact being that the sowcars, when they found there was danger of their clients slipping from their hands, gave them the accommodation which they had before refused. There are few ryots in a position to offend their banker. The great object of the sowcar is to evade repayment; if the season is good he lets the debt run on from year to year at 36 per cent. interest; and this system is preferred by the cultivator to the tedious formalities and rigid terms of repayment attached to Government advances.

Punjab.

The number of sales of land in the Punjab in 1875–76 was greater than that in the preceding year, amounting to 6,600, while the area aggregated 89,320 acres. Of this area, 58 per cent. went to agriculturists. The proportion sold under pressure was 76 per cent., and it is a remarkable circumstance that of land thus sold a much greater portion went to agriculturists than of land sold without pressure.

It is estimated that the present rate of transfers might continue for upwards of 80 years before one-fourth of the land in the province exchanged hands.

Of the land mortgaged during the year, 186,950 acres were on account of debt, and 16,876 acres for the purpose of raising money for agricultural improvements. The area redeemed increased from 35,712 to 70,415 acres, or, taking into account only land mortgaged to non-agriculturists, from 19,608 to 53,790 acres.

The value of land was nearly double what it was six years previously.

The above statistics confirm the view expressed in former reports of this Administration that there is no cause for alarm or anxiety in connexion with transfers of land in the Punjab. The following are remarks by the Financial Commissioner on the subject:—

"After taking into consideration all the facts bearing on this important question, there is "nothing to show that these transfers are to any extent brought about in consequence of the "pressure of the Government demand, while it is clear that the prices paid are rising largely. "That sales and mortgages take place to a large extent is not to be doubted. It is desirable "that the landholders should, if possible, retain their lands and should prosper. A large pro-"portion of them do prosper, and no one who compares the condition of the village proprietors "now with what it was 24 years ago can doubt that a large increase of general prosperity has "occurred. The comfortable and well-to-do keep out of sight; the thriftless and indebted are "constantly claiming notice; what proportion the former bear to the latter we do not know, "but it is not by any means certain that the facts hitherto ascertained are sufficient to warrant "interference by the legislature to restrict the transfer of land. Light assessments and a "peaceful rule have caused a great increase in the comfort and general ease of the people, and "there are grave objections to contracting the liberty under which this prosperity has occurred "by placing the whole agricultural population in a state of tutelage for the fault of that "section of it which are unable to take advantage of their improved circumstances, until and "unless the necessity for such a course becomes absolute."

The effect of the Land Improvement Act of 1871 having been generally a very marked falling off in the demand for Government advances, the amendment of the rules was under consideration. By the rules framed under the provisions of that Act a more elaborate preliminary inquiry was provided for, and it is believed that the trouble entailed upon tahsildars of inspecting and reporting upon each work induces them to discourage applications for advances. In 1875–76, however, there was an increase in the total demand from 7,436*l.* to 12,037*l.*

Central Provinces.

On the question whether in the Central Provinces the ancient landholders are losing their property by sale or mortgage, the statistics of the year show that, while the number of deeds of mortgage executed in favour of bankers much exceeded those in favour of agriculturists, the number of actual transfers to agriculturists was double that of transfers to bankers; hence it is inferred that, when the extreme limit of the security is reached or passed, and the property is put up for sale, it is bought in by members of the agricultural community. The

efforts of the Commissioners and Deputy Commissioners to avert the sale of ancestral landed property have, it is hoped, been in a fair number of instances successful.

GOVERNMENT AND WARDS ESTATES.

There were in Bengal 2,514 Government estates, the total revenue demand from which amounted to 188,219*l.* The funds were liberally utilised for the improvement of the estates.

The object was kept in view of making the Wards' estates models of well managed properties. The condition of the tenantry was generally good, and their relations with the managers amicable. In one estate (in Monghyr) the rents had been nearly doubled by the effect of irrigation works. Many of the estates came under the management of the court either on the application of the proprietors themselves or in consequence of testamentary dispositions.

Bengal.

Madras.

On the 30th June 1875 (the close of the revenue year) there were 32 Wards' estates in the Madras Presidency. Of the proprietors, 24 were boys and 5 women, the remaining 3 being lunatics. Cultivation on these estates was on the increase. The collections of revenue were less than those of the preceding year, owing to a diminution of the arrear demand. Such of the minors as were capable of it were being educated, and their conduct was on the whole good. Some of them were studying under a European tutor at the capital.

Punjab.

The estates in the Punjab of which Government was the proprietor aggregated in area 16,406 square miles, of which about one-ninth part only was cultivated.

The number of Wards' estates increased from 31 to 38. The management of these properties was generally efficient, and they were on the whole thriving and prosperous.

North-West Provinces.

There were 75 estates under the charge of the Court of Wards in the North-West Provinces, the gross receipts of which amounted to 165,000*l.* Among the beneficial effects of the court's influence are noted the small amount of litigation between it and the tenantry, the liberal advances to distressed cultivators, and the judicious expenditure on permanent and profitable improvements. The financial position of the estates is also referred to with satisfaction. Of the total number, 55 were at the outset encumbered with debts to the amount of 370,000*l.*; at the close of the year 16 of them had been entirely cleared, and the amount of debt remaining on the others was about 222,500*l.*

Oude.

During this year the services of the Superintendents of Encumbered Estates in Oude were dispensed with, under the orders of the Government of India. These officers were originally appointed to manage the estates of certain indebted talookdars, which were taken charge of by Government under an Act of 1870. It was considered that the estates had been long enough under the care of a special and expensive agency, and they were therefore transferred to the direct charge of the Deputy Commissioners; and it was at the same time determined that the debts outstanding upon them should be discharged by advances from the Government Treasury.

V.

AGRICULTURE.

SEASONS AND CROPS. Bengal.

The harvests of Bengal during 1875–76 were generally favourable; the autumn crops everywhere were excellent. The results varied, however, in the several divisions of the province.

In Burdwan the rainfall was an average one, and on the whole seasonable. The reports from the Presidency Division were for the most part favourable; in the 24-Pergunnahs a plentiful rainfall resulted in an abundant rice crop. In the Rajshahye and Cooch Behar Division the rainfall was generally below the average, but in two districts only was the rice harvest a bad one; in the northern part of Dinagepore the failure was so considerable that apprehensions were entertained of another period of scarcity.

Although the rainfall throughout the Dacca Division was scanty and unfavourably distributed, yet the general outturn of the crops was not below the average. The season in Chittagong was marked by an excessive fall of rain, which in August resulted in serious floods, the water lying 15 feet deep over cultivated fields. Much damage was caused to the early rice crops and other produce, and to horses and cattle, and the flood was succeeded by a drought, which occasioned further injury.

The year opened in the Patna Division with every prospect of plenty, but it closed with an alarming failure of the winter rice harvest. So early as November there were apprehensions of short crops and general distress throughout Northern Behar. On investigation it was found that, although in some localities the failure was almost total, yet the area of failure was a limited one. Notwithstanding these adverse circumstances, the prices of food remained low all over Behar, which was apparently due to the prosperous harvests in other places, from which it was felt that supplies could be obtained through private trade. The Lieutenant-Governor regarded this circumstance with great satisfaction.

The history of the season in Bhaugulpore was similar to that in Dacca, only the failure of crops was not considerable. The year was generally prosperous in Orissa, and there was a magnificent crop of rice. The results were various in the different parts of the Chota Nagpore Division.

In connexion with Dr. Forbes Watson's plan for an industrial survey of Bengal, the attention of the Government has been directed to the defective character of the agricultural statistics of the province. The collection of complete statistics seems to be for the present out of the question, on account of the great cost that would be involved in a cadastral survey of Behar and Northern Bengal. Sir R. Temple has decided that the best plan will be gradually to extend the system inaugurated by his predecessor of obtaining accurate statistics in selected areas. The arrangements introduced by Sir G. Campbell have already borne valuable fruit, all the Deputy Collectors having made laborious and careful inquiries, and submitted interesting reports to Government. In addition to the maintenance and extension of this system, Sir R. Temple will not neglect any other opportunities that may arise of collecting information. A large number of scattered reports and papers bearing on agricultural questions are being arranged as well as circumstances will permit.

Madras.

The season in the Madras Presidency was generally a remarkably dry one. The south-west monsoon failed altogether, and the north-east monsoon also to a considerable extent. Nevertheless the average prices of food grains were, owing to the propitious seasons of 1874–75, on the whole lower than they had been in that year.

Bombay.

In Bombay the season of 1875 was a peculiar and not generally favourable one. The rainfall was considerably above the average, but was irregularly distributed, both as to time and locality.

On the coast the monsoon opened with a fuller fall than usual; but in the interior, whilst the early crops had to be re-sown in many of the western districts, owing to the first sowings having been destroyed by floods, further east the land remained unsown for want of moisture. After the first falls a more or less prolonged drought was experienced in some parts till September, when a very heavy storm passed along the coast districts and over the Guzerat country, flooding the rivers and destroying the standing crops. Thus, in the southern and eastern Collectorates the harvest was blighted by the rains ceasing too soon, whilst in Guzerat and the Konkan it suffered from excessive flooding. The late crops fared better, and, taken altogether, the harvests in the Southern Mahratta country and Deccan were sufficient, the yield in the Konkan was good, and in Guzerat occasionally better than the average.

The tendency to contraction of the area under crops, which was noticed in the last Report (p. 32), continued, though not in so marked a degree. On the other hand, the area under

cotton increased; but for the profit to be derived from that cultivation, it is believed that the abandonment of land in recent years would have been greater than it has been. The year 1874–75 was evidently a period of special depression. A very general improvement in the prices of agricultural produce during the subsequent year stimulated cultivation, while there was also reason to believe that the money lenders were not so active in their efforts to realise capital lent.

The Government observe:—"Where people are content to live as long as the harvests are "bountiful and then to die like sheep, a sense of individual distress is lost in what appears to "be the overwhelming and destructive fury of fate; but it has been the object of the political "economy of civilised life to recognise the laws which work in the natural world, and to "anticipate calamities by gradually removing the cause. A population steadily struggling "away from poverty must leave many behind, and those who are thus at the base of civilised "society, either because they cannot or will not work, suffer more acutely than if all society "were content with a low standard. The Natives have already recognised the vast change "which is working. They lament the importations from Europe and the areas of ground "under exportable crops, forgetting that, so far from the food area having been curtailed to "purchase comforts, it has been largely increased, and that, if there is a pressure now felt, it "is the pressure upon idleness and listlessness caused by the new necessity to exertion."

Punjab.

The rainfall of 1875–76 in the Punjab was a very extraordinary one. It amounted in depth to 37 inches, being 12 more than in the previous year, and 10 more than the average of the five preceding years; and this extraordinary increase was confined to the months of August and September, during which in 14 districts the rain was in excess of the average fall of an entire year. The effect was in some respects beneficial, and in others the reverse; while, on the one hand, there was great destruction of crops, cattle, and house property, on the other hand the abundant autumn rains rendered a large additional area of land available for the ensuing spring crops.

The total area under cultivation amounted to 20,571,423 acres, against 19,968,976 in 1874–75. In the southern districts and in the Derajat there was a large increase in wheat cultivation.

The year was a very unfavourable one for agricultural experiments, and the attempts made to popularise new staples met generally with little success.

North-West Provinces.

The season in the North-West Provinces was not altogether unfavourable, but in the north-westerly districts the rains commenced too late, and sowings were therefore retarded. In the autumn heavy falls of rain did a great deal of damage to cotton and Indian corn in the same districts, but these rains were favourable for the sowings of the rubbee, and the harvests were, notwithstanding the absence of winter rains, generally satisfactory.

In the Allahabad district a serious calamity occurred in the flooding of the Jumna and of a mountain stream called the Tons. The confluence of the Jumna with the Ganges heaped up the waters of both to a height unknown before, which covered the lowlands of the station and entered the city of Allahabad; and only by unceasing exertions were they prevented from extending much further. The floods subsided rapidly, and it was then found that 772 villages had been destroyed or damaged, 181 lives had been lost, and 1,949 head of cattle and 826 sheep and swine had been drowned, while the total damage was estimated at nearly 140,000*l.*

Oude.

The harvests in Oude were, generally speaking, above the average, and there is stated to have been a nearer approach to prosperity than the province had experienced for some years.

Ajmere.

The rubbee harvest in Ajmere was poor, owing to deficiency of water in the tanks. The rainfall of the year, taken as a whole, was favourable; it was, however, comparatively slight until September, when a remarkable downpour occurred, which proved destructive to many of the tanks, and submerged much land. The khurreef harvest was an average one.

The crops in the rubbee consist principally of wheat, gram, barley, and opium; the cultivation of the latter is extending.

Central Provinces.

There was an increase under all heads, as compared with the preceding year, in the cultivated area of the Central Provinces, especially under food-grains, oil-seeds, and sugar-cane.

The rainfall was, altogether, much above the average; its general effect appears to have been unfavourable to the khurreef crops and advantageous to the rubbee. In different districts, however, the result was various. On the whole, there was no reason to complain, except in regard to cotton. The lowness of prices was indicative of general prosperity; indeed, the agriculturists complained that for this reason they were not able to dispose profitably of their produce, and even looked upon their good harvests as almost a misfortune.

Food-grains occupy 12 of the 14 million acres cultivated in the province.

Berar.

During the five years ending with 1875–76 the area under cultivation in Berar increased by 1,415,903 acres. The increase during the year under report was 162,905 acres. There

is very little wet cultivation, 98·52 per cent. of the whole territory being occupied by dry crops. There were 20,636 acres under rice, and 74,392 acres of irrigated lands, out of a total cultivated area of 6,398,330 acres. Jowari was cultivated much less than in the previous year, the deficiency being made up by grains, pulses, and oil-seeds; the acreage under linseed was nearly doubled. Tobacco was grown much more largely, while the cultivation of opium decreased.

Coorg. A rainfall, one-third less than in the previous year, and the least that had been gauged since 1868, affected the outturn of crops in Coorg. On the other hand, the marked rise in the price of food-grains stimulated cultivation, and 1,500 acres of fresh land were brought under rice. The coffee crop is reported to have been, on the whole, good.

British Burma. According to the statistics, the accuracy of which, however, cannot be relied on, there are in British Burma 38,866 square miles of culturable land, of which only some 3,717 are actually under crops.

Cultivation continued steadily to extend during the year under report. The rate of increase, 2·23 per cent., was small as compared with that of the previous year (10·77), which, however, was consequent on exceptional circumstances (*see* last Report, p. 34).

The rains in most places were both early and excessive, and there were vast inundations in the deltaic districts of the Pegu division which rendered large tracts of land unculturable; while the area already planted was so long submerged as to destroy all hopes of harvest. At the commencement of the cold season, in the districts of Akyab, Bassein, Thonkwa, and Toungoo there was a serious lack of the usual ripening showers, and the crops in consequence were meagre and poor; but elsewhere more favourable results appeared.

Model Farms. Bengal. As mentioned in the last Report (p. 34), the model farms which had been temporarily established in Bengal have been closed. Their working was expensive, and their beneficial influence was but trifling. The Poosah estate has been retained, but is not used for purposes of general agriculture; tobacco experiments are to be conducted there, and possibly an agricultural college for Behar will be established on it. The latter scheme is in abeyance, as an industrial school which has been opened at Patna will perhaps be found to supply in some measure the want of technical education in Behar.

Madras. The Sydapet farms, while not a commercial success, are considered by the Madras Government to have produced very valuable results in the way of agricultural experiments, which can be utilised for directing operations in the Presidency generally. It is intended gradually to open similar farms in the districts.

The season was very unfavourable for field experiments, few of which yielded any results except where irrigation was available. An important experiment was in progress for applying irrigation water to the subsoil instead of the surface soil.

A school of agriculture has been established at the experimental farm, with a view to the scientific and efficient training of young men. The lectures will be open to the public, and the course of instruction will extend over three years. Arrangements have been made for securing the services of competent lecturers on the various subjects.

Bombay. As yet the Bombay Government has taken little active share in the introduction of higher farming, confining itself rather to experimenting on valuable crops and then recommending them for cultivation, a plan which has had marked success in leading to the improvement of the sugar-cane and the cotton plant. But, at no inconsiderable expense, this Government maintain three farms—one in Sind, one in Khandesh, and the third in Dharwar—for the purpose of trying new manures and plants upon Indian soils, of ascertaining the ordinary yield of various crops per acre, of distributing selected seed, and of endeavouring to secure workable machinery by adaptation of mechanical appliances to the rude agricultural instruments of the Native farmer. An attempt has also been made to receive and train apprentices at these farms, and by their means and the issue of popular manuals, for which these farms are collecting materials, some good may be effected. But if the farms merely distribute large quantities of prepared seed they will amply repay their cost to the country, and, as more experience is required, they may do this and yet cover their working expenses.

The three model farms are considered by the Government to have done some useful work during the year.

At the Salaru farm, in Sind, the season was unfavourable. Cultivation was very restricted, and consisted mainly of Native cotton and bajri. Early sowing was tried on well lands, with good results. An acre was manured and ploughed with the English plough, and sown with Sind cotton in March or April, and the yield was 1,884 lbs. seed cotton, or 628 lbs. cleaned. Much injury was done to all the cotton by the green fly. It is stated that the difference between fields ploughed with the English plough and those ploughed with the Native implement is very marked, the latter never being free of grass. The Commissioner in Sind is

of opinion that the farm has benefited cotton-growing in the neighbourhood, and that its area might with advantage be extended.

On the Khandesh farm cotton was the most important crop, nearly the whole being of the Hingunghât variety. The maximum yield was 130 lbs. of clean cotton per acre, the average being 50 lbs. The entire crop, which occupied 139 acres, yielded a profit of 57*l*. For the first time the receipts of this farm very nearly equalled the disbursements.

The hopes of a good yield on the farm at Dharwar were entirely destroyed by drought and cold winds. With experience and time it is hoped that this farm will become a good test of the producing powers of land, though it may not repay the cost of cultivation.

Central Provinces.

At the Nagpore Model Farm better success was obtained than in the previous year. The channel from the Ambajhari Lake was completed, making it possible to irrigate 166 acres under crop. Some of the experiments during the year were very successful. On six acres of manured soil 304 lbs. (or 50 · 6 per acre) of cleaned cotton were raised from seed of the Hingunghât variety. On unmanured land the yield, under the same conditions of season, was only 28 lbs. per acre.

Agricultural Stock. Bombay.

The number of cattle and sheep in Bombay kept up, but there was no improvement in quality. The disinclination of the Natives to destroy life, and the neglect of gelding, lead to the country being overrun with inferior animals. The horses are rather better, but they have in great measure lost their value since freebooters and intestine troubles have ceased, and also in consequence of the large importation of foreign animals. Seven horse shows were held during the year, four of which were considered fairly successful. The Collector of Poona says that the exhibition held at that place tended to show that the country breed was being gradually but surely improved.

Punjab.

The scarcity of fodder at the beginning of the year, the destructive floods of August and September, and the general prevalence of cattle disease, combined to make the season in the Punjab an unfavourable one for live stock. For animals affected with the foot-and-mouth disease Colonel H. L. Davies's specific was tried with success in the Kurnool district, but the remedy is an expensive one, and is consequently not likely to come into general use among the people.

Attempts were made to improve the breed of sheep and horned cattle by the introduction of superior rams and bulls from the Hissar Farm. The results of the former experiment were so far disappointing, but the Hissar bulls are stated to have done well in all cases where they were judiciously selected and well cared for.

A new cattle fair was established at Hoshiarpur, with tolerable success.

The horse fair held at Rawulpindee was much larger than in any previous year, which showed that good results were being gradually developed. A great drawback in the Punjab to the improvement of the breed is that the excellence of the provincial horses leads to a very early and rapid sale of the young stock out of the province. While this stimulates production it removes much of the material from which improvement might be obtained.

The show of mules at the above fair was remarkably good. Mule-breeding is carried on extensively in the Punjab, and supplies a great want in connexion with the mountain train batteries.

British Burma.

The live stock of British Burma continued to multiply, although cattle disease was very prevalent in three districts, upwards of 14,000 head having died in Amherst alone. The plague is thought to be partly due to the neglect, in extending cultivation, to provide a sufficiency of pasturage.

Buffaloes increased from 630,708 to 643,664.

Horses are rare in the country, and are used exclusively as articles of luxury; but ponies increased by 640, and Arab stallions were imported into Thyetmyo and Prome to improve the breed.

Agricultural shows were held at 10 stations, and were fairly successful. The scheme, however, had not yet come to be understood by the Natives, and each competitor expected a prize.

Cotton. Madras.

The area cultivated with cotton in Madras increased by 67,982 acres, the increase being chiefly in the Ceded Districts. Many lands were placed under cotton which, but for the dry season, would have been cultivated with "wet" crops.

Several experiments have been made during the last few years on the Sydapet farm with different varieties of cotton. The "Western" variety yielded 353 lbs. per acre. The New Orleans species has been grown with considerable success. This cotton appears to be peculiarly adapted for cultivation under an improved system of farming, being otherwise very liable to run to stem and leaf; it has, however, the disadvantage of great uncertainty in

the time and quantity of the harvests, and, as the latter spread over several months, a considerable expenditure is required in gathering the crop and keeping down the weeds.

Bombay. The total area under cotton in the Bombay Presidency was one-tenth of the entire land capable of cultivation, and one-third of the land fit for cotton. It amounted (including Native States) to 4,408,235 acres, or 178,639 more than in 1874–75. In the outturn also there was a net increase amounting to 41,212 cwts. of cleaned cotton; in the Northern Division there was a falling off. Both the acreage and the yield exceeded the average of the previous four years, the first by 475,196 acres and the latter by 64,449 cwts. Contrary to the experience of the preceding year, there was a decrease in the area under indigenous cotton of 12,880 acres, while under exotic varieties there was an increase of 191,519 acres.

The heaviest yield per acre was obtained in the Collectorate of Hyderabad, which was also the case in 1874–75. In the Report for that year (p. 35) the yield was stated to have been 287·19 lbs., but it now appears that the correct figure was 319·27 lbs.; even this ratio, however, was exceeded in 1875–76, when the yield amounted to 346·94 per acre. The plentiful rainfall aided this result. The returns obtained in the Salaru and Khandesh farms have been stated above.

The crop was, on the whole, inferior in quality to that of the preceding season. A considerable part was stained on account of rain having fallen at picking time, and no small portion of it was mixed with leaf, the apparent result of carelessness in gathering it in the field.

An interesting experiment was tried of sowing cotton and bringing it up by irrigation about 20 days before the monsoon was expected. On this occasion the success was remarkable.

The working of the Cotton Frauds Act was very beneficial. Adulteration in its grosser forms was met with in comparatively few instances; it appears to have been confined to a district in Kattywar, where the Act is not in force, and to the Southern Mahratta Country, where the saw gin affords peculiar facilities for the practice.

Central Provinces. Cotton is extensively cultivated in the Wurdha, Nagpore, Raipore, Nursingpore, and Chindwarra districts. The best kind is raised in the two former districts, and there the crop suffered severely during the year under review.

The outturn for the whole of the Central Provinces fell from 251,652 cwts. in 1874–75 to 150,436 cwts. in 1875–76, and the quality of the cotton in the latter year was generally inferior.

Chinchona. Bengal. After 13 years of expenditure on the chinchona plantations in British Sikkim, at first in experiments, and latterly on *bonâ fide* planting, during which period but little return was received, the scale began to turn in 1875–76. In that year no addition was made to the permanent plantations, but the main work consisted in gathering a crop of 211,931 lbs. of red bark. This yield was more than five times as great as that of the preceding year.

The chinchona plantations in the Darjeeling district covered 1,800 acres, and were stocked with about 3,000,000 trees, of which 2,600,000 are of the *succirubra* and 350,000 of the *calisaya* species. The bark of the latter yields chiefly one alkaloid, quinine, the isolation of which can be cheaply accomplished in India; while, in the case of the *succirubra* variety, the separation of the quinine from the other alkaloids would cost too much to be profitable. The *succirubra*, however, contains mixed alkaloids, which, if they could be produced in sufficiently large quantities, would afford a cheap febrifuge for the mass of the people.

The present plantations, it is estimated, can in future supply annually about 400 lbs. of *calisaya* and 10,000 lbs. of *succirubra* alkaloids. This quantity, large as it is, would be quite inadequate for general distribution, and the expediency was therefore under consideration of extending the plantations towards the south-east, where the ground presents remarkable advantages as to soil, elevation, and temperature.

The quantity of dry bark used by the quinologist in manufacture during the year was 107,130 lbs. This yielded only 1,989 lbs. of chinchona febrifuge, but more than one half of the bark was branch bark, which is always poor in alkaloids. It was estimated that 366,000 lbs. of dry bark would be collected in 1876–77; and it is hoped that the febrifuge may be supplied to the public at a cost of less than one rupee per ounce. The alkaloid factory was to be transferred from Rungbee to Calcutta, and worked upon a larger scale in either the Presidency or the Alipore jail. It will there be more under professional supervision, and have greater advantages in respect of mechanical appliances.

In gathering the bark, attention was paid to the important objects of assisting future cultivation and of adding to the practical knowledge of the best methods of harvesting. The practice of uprooting the entire tree was adopted, in order to save the loss of bark which arises from the fact that, after coppicing, a certain proportion of the stools fail to shoot. The root bark thus made available for manufacture was found to contain about 8 per cent. of alkaloids, or 1 per cent. more than the finest stem bark. The practice of stripping bark from

living trees was not resorted to during the year, as it was found that the removal of bark under moss was rendered impossible in Sikkim by the attacks of ants. It is thought probable that this method of harvesting bark, which is so successful in the Nilgherry plantations, will be entirely abandoned in Sikkim.

Madras. The total number of chinchona plants in the Nilgherry plantations at the close of 1875–76 was 1,190,458, about equally divided between the *succirubra* and *officinalis* species. The harvest of the year amounted to 65,170 lbs. The season was a favourable one for the plantations, though, owing, it is believed, to the deficient rainfall, some slight damage was caused by unusually severe frost.

The importance of careful weeding and watering was demonstrated by the more vigorous growth of the plants and increased yield of bark. On the other hand, special manuring was not followed by any appreciable effect.

The advantages of the mossing over the coppicing process were also established by the experience of this season, as regards both more speedy production and superior quality. The objection existing to this process in Sikkim and Ceylon, owing to the attacks of white ants and other insects, does not apply to the Nilgherry plantations.

TEA. Bengal. There was a very great increase in the area under tea cultivation in Darjeeling, in the outturn of tea, and in the number of both Europeans and Natives employed in the industry. The area advanced from 18,888 to 22,162 acres, and the amount manufactured increased by 686,988 lbs. But this increase in quantity was obtained by a sacrifice of quality; the mechanical appliances and the available amount of labour were not sufficient properly to work up the leaf, and the strain upon the plant caused by continuous overplucking is believed to have produced a temporary deterioration in the character of the leaf.

The same fault was observed in the preceding year, and it is said that attention has at length been thoroughly roused to this matter. The returns of the season of 1876 already showed improvement.

Punjab. The tea industry advanced in the Kangra district; the area and outturn were respectively 6,580 acres and 592,200 lbs., as compared with 5,620 acres and 492,572 lbs. in the preceding year.

TOBACCO. North-West Provinces. The experiment in tobacco cultivation was commenced in April 1875 on the Ghazeepore stud lands. About 1,200 acres have been rented by a Calcutta firm at about half-assets rates, and the firm have been allowed the rent-free use of the stud buildings, on condition of their importing from Virginia a carefully selected tobacco curer, and placing a certain acreage every year under tobacco. At the end of five years, if their enterprise has proved successful, they will be allowed to retain the farm at the same rate of rent. Only a few acres were planted during the year under report, very little of the land being in a fit condition for tobacco. The curer arrived in January 1876. He cured a sufficient quantity to send as samples to the English and Australian markets, in the former of which it has been classed at a price sufficiently high to encourage further efforts.

FORESTS. Bengal. While further progress was made in Bengal during the year under review in the formation of reserves, attention was principally bestowed on the improvement and working of the forests. The area added amounted to 1,118 square miles, making altogether 2,585 square miles. The forests still remaining for exploration are of no great importance.

It is not probable that any further additions will be made to the reserved area in the Soonderbuns. The Conservator recommended that the whole of the unleased area should be placed under the Forest Department; but the Lieutenant-Governor considered that the reserved tract should be limited to the smallest area compatible with the effectual preservation of the valuable soondri timber.

The area of plantations was increased by 63 acres. The teak plantations in Chittagong were reported to be very promising. Two experiments were made in Darjeeling: one was the rearing of a number of seedlings of the *Ficus elastica*, which were stated to be doing well; and the other, the laying out of a small bamboo plantation, with the object of ascertaining whether the bamboo can be successfully cultivated as a material for the manufacture of paper.

Considerable progress was made in the demarcation of boundaries. The measures taken for protection from fire were in some cases thwarted by the excessive dry weather which prevailed during the early months of 1876. A case is mentioned of a nursery being entirely destroyed through a burning leaf, which dropped upon it in the presence of three forest officials, whose utmost efforts to check the conflagration were of no avail.

It was decided to establish a school of forestry for training the Natives of Bengal for this work, which, in respect of climate, is better suited to them than to Europeans. No Natives will be employed in forestry except those that have passed through this school.

Madras. The Forest Department in Madras was separated during the year, and its control re-transferred from the Revenue Board and Collectors to the Conservator.

The number of plantations in 1875–76 was 78; in the former year it was 56. The area planted increased from 5,748 to 7,952 acres.

Bombay. Demarcation was vigorously carried on in the Presidency of Bombay, and some additions were made to the reserves. It is believed that State forests and other properties in trees are considerably plundered, and the need for forest legislation becomes increasingly urgent as demarcation proceeds. Much work was also done in plantations. In the Patna reserves of Khandesh 389 acres were planted with babul, teak, and other trees, and in the Dhulia reserve teak was sown over 100 acres, and nurseries for teak were formed.

Punjab. The tracts under the control of the Forest Department in the Punjab comprised an area of 9,300 square miles, of which 3,590 were reserved.

In the Sutlej Division 30 acres were turned up and sown with deodar, and much was done in sowing and planting in other parts also. The Rawulpindee forests suffered much from fires, of which 32 occurred during the year, extending over a total area of more than 33 square miles.

North-West Provinces. Additions were made to the reserved forests of the North-West Provinces to the extent of 1,211 square miles. The work of protection from fires proceeded, and large areas were added during the year. Considerable damage was done by fires in some parts; in the Dehra Doon four fires occurred in one month, destroying 3,200 out of 7,685 acres of strictly conserved forests. In Goruckpore about 33,900 out of 73,408 acres were destroyed. Planting was extensively carried on in some divisions, and progress was also made in demarcating forest boundaries.

Assam. The area added to reserves in Assam during 1875–76 amounted to 430 square miles. Of this area, 348 square miles were in the Eastern Dooars, which contain the most valuable forests in Assam. These had remained almost without protection until 1872, when they were declared open forests; but during the year under report the Chief Commissioner recognised the urgent necessity for having them strictly conserved.

An area of 46½ square miles at the foot of the Akha Hills was declared a reserve, with a view to the securing of ample forest land for the extension of caoutchouc plantations.

Except from the reserves, ryots are allowed to supply all their wants free of charge from the Government forests. The valuable sâl forests in the valley districts had nearly all been worked out before conservancy commenced, and they require many years' rest and care before felling can be resumed in them.

Experiments made with seedlings and the planting of saplings were successful, but it was not intended to continue them, as planting in the province is expensive, and sâl forests will spread naturally if only fires are kept out. It was also determined not to extend the plantation of exotic trees, the revenue from which is not large, but to employ all available funds in the improvement of the natural forests.

There are no regular and certain timber markets in the province, and an export trade exists only in the Goalpara and Kamroop districts in sâl timber. The development of a trade in other kinds of timber from the districts higher up the Brahmapootra will have to be attempted very cautiously, so as to prevent financial losses on such operations. The sâl timber produced in the Gowhatty Division has hitherto been almost entirely required by the Public Works Department, but as now nearly all the bridges on the Assam Trunk Road have been completed, logs will in future be despatched to Bengal for boatbuilding.

Two great dangers to which forests, particularly in the Garo Hills, are exposed are "jhooming" and fire. The first of these is a method of cultivation adopted by the Natives, namely, the application as manure to the fields of the ashes and charcoal from burnt wood. Nearly a whole reserve, and portions of two others, were consumed by fire in the Gowhatty Division. The extent and luxuriant growth of grass make fire protection a peculiarly difficult task in Assam. The fires just referred to came from outside, burning for miles, and could have been extinguished by the villagers long before they reached the reserves; indeed they would probably never have happened were not the villagers extremely reckless in letting fires spread from their fields or grazing grounds. The small establishments of the Forest Department were very active throughout the province, and in one or two instances the people from adjoining villages did their utmost to put out fires, but in the majority of cases protection was effected by resort being had at the last moment to the extreme measure of setting fire to the grass outside the fire-strips, and burning away from the forest.

Fire protection will be exceptionally difficult in the Eastern Dooars, where the reserves are surrounded by enormous areas of land on which the grass grows to a height of 6 to 10 feet and more. The mischief there originates chiefly with the woodcutters, who set fire to the grass to enable them to find and remove the dead timber.

In the Golaghât Division there is another source of danger. The surrounding hill tribes descend into the forests and make large clearances, which they do in a very short space of time, and which only the most active vigilance could prevent.

The State reserves in the Central Provinces were further increased in area, and met the general wants of the people in all classes of forest produce. Increased success was also attained in the protection of the reserves from fire. Central Provinces.

The unreserved forests, although some of the best of those formerly coming under this head had been added to the reserves, yielded a larger revenue than in any previous year.

Experiments in the propagation of lac were continued, but with varying success. In some cases where there were failures a second trial proved successful. In regard to these experiments, the Chief Commissioner observes, "there is much to learn yet."

Satisfactory progress was made in demarcating reserved forests in the Hyderabad Assigned Districts. Berar.

One of the most important duties devolving on the Berar Forest Department is the supply of babul wood for fuel, the Steam Cotton Pressing Mills being to a great extent dependent on it.

The protection of forests in the Melghat from fire is said to have brought about a decided change in the climate, the excessive cold being now very trying to young plantations; but this is more than compensated for by the increased facilities for natural reproduction.

The forests of British Burma have a peculiar advantage in the paucity of obstructive interests. A special scheme of departmental work and organization was sanctioned by the Supreme Government in 1874, and consequent efforts in conservancy and culture have been both strenuous and successful. The year under report was a period of much energy in administrative measures. The gross revenue rose from 107,480*l.* to 177,902*l.*, while the proportion of charges fell from 61 to 44 per cent. At the commencement of the year the area of State reserves comprised— British Burma.

	Acres.
Teak - -	335,880
Cutch - -	17,600
Fuel - -	39,313
Total -	392,793

During 1875–6 no addition was made to the teak and cutch appropriations; but the fuel reserves were increased by 32,294 acres, for the benefit of the Rangoon and Irrawaddy Valley State Railway.

Several new forest tracts were visited and explored; fire protection was effective in all the reserves; and upwards of 500 acres were planted with or prepared for the more valuable timber. The outturn of teak advanced from 35,568 to 46,597 tons, and of other woods from 4,664 to 11,754 tons.

The export of teak from the two provincial seaports amounted to 162,164 tons, as compared with 115,806 tons in 1874. Though the trade is steadily increasing, the traders' profits are lessening fast; the cost of extraction is higher each year as the supply gets scantier and further removed, while the Home and Indian markets are too overstocked to allow a proportionate rise in price.

VI.

PUBLIC WORKS.

IRRIGATION. Bengal. No new irrigation works of any importance were undertaken during 1875–76 in Bengal. The total outlay of the year on irrigation was 525,577*l.* More than 45,000*l.* was spent on the maintenance and improvement of embankments.

Madras. The outlay on irrigation in Madras during 1875–76 from "extraordinary" capital was 59,408*l.*, and from "ordinary" capital 43,935*l.*

In the Godavery Delta 450 miles were ready, or nearly ready, for navigation; and the system irrigates about 513,143 acres. The total capital outlay under all heads on these works to the end of the year under review was 736,444*l.*

The area irrigated by the Kistna Delta system is 226,226 acres; the total expenditure reached 463,590*l.*

The net revenue from the capital outlay on the Godavery, Kistna, and Cauvery Delta works for a series of years was estimated at 21·25, 15·48, and 85·81 per cent. respectively.

The principal expenditure from revenue was on the Madras waterworks and the Cumbum tank works. In regard to the former, little was done beyond maintaining the works in good order. Cumbum had suffered much from fever, the cause of which was traced to the neglected state of the irrigation channels and land drainage; the work of clearing and restoring the watercourses was seriously taken in hand in 1875–76.

The Madras Irrigation and Canal Company remained in an unsatisfactory condition. The total expenditure in India from the commencement reached 1,583,309*l.* In 1875–76 estimates were sanctioned for 6,469*l.* There was very little extension of irrigation during the year; the operations consisted chiefly in the removal of silt, raising and strengthening of embankments, and repairs to lock gates, &c. In the upper portions no clearance had been made for four years, and the accumulation amounted to 76,000 cubic yards. The financial prospects of the canal were as bad as ever; the question of utilising it for navigation was under consideration.

Bombay. Of 401,038*l.* expended from Imperial funds on public works in Bombay, 194,393*l.* were devoted to irrigation, to a great extent in connexion with tanks and reservoirs, there being, with the exception of Sind, no extensive canal system in the Presidency. In Sind the works on the Begari Canal were continued. The Desert Canal was widened, and was also extended in length from 36 to 52½ miles. The Sukkur Canal likewise made progress, and various improvements were effected in other canals. Six miles were added to the Kusmore embankment, in connexion with which there was much difficulty in procuring sufficient labour.

Punjab. Extensive repairs to the works of the Baree Doab Canal were rendered necessary by the floods. Good progress was made on works connected with the Jumna and Sirhind canals.

Captain Grey's project in the Ferozepore district was referred to in the last Report (p. 44). During 1875–76, 43,331 acres of land received water from these canals, and the area would have been greater but that the necessity for artificial irrigation was to a great extent obviated by the unusual rainfall.

In the Sirsa district two large and beneficial schemes were successfully carried out by the Deputy Commissioner, Mr. Wakefield.

North-West Provinces. The following six systems of irrigation in the North-West Provinces were in operation prior to the year under report:—(1) the Ganges Canal; (2) the Eastern Jumna Canal; (3) the Doon canals; (4) the Rohilkund canals; (5) the Bijnor watercourses; (6) the Bundelkund Irrigation Works. On these six systems the capital sunk by the British Government up to the end of 1875–76 amounted to 3,269,778*l.*, of which 78,324*l.* were spent during the year. On works under construction, viz., the Lower Ganges Canal, and the surveys for the projects in Bundelkund, the expenditure up to the close of the same year was 904,517*l.*, and that during the year 254,469*l.*

The net profit on the old works was calculated at 5·78 per cent. on the whole capital sunk. The per-centages of net direct profits from the Ganges and Eastern Jumna canals were 3·80 and 15·63 respectively; or, including indirect profits, 6·01 and 25·19. The steady increase for several years past of the area of irrigation indicates the general prosperity of these canals.

The works on the Agra Canal were, with few exceptions, complete. The heavy floods of the year severely tried these works.

RAILWAYS. East Indian Railway. On the East Indian Railway the returns both of passengers and of goods were increasing. The works on the line were severely tested by an unprecedented flooding of the Jumna, which, however, left the bridges both at Delhi and at Allahabad uninjured. The net earnings of the Main line during 1875 amounted to 1,546,609*l.*, which gave a per-centage of 5·7 on the guaranteed capital. On the Jubbulpore line the earnings showed a large falling off.

The Eastern Bengal Railway held its ground, but no more. The passenger traffic recovered from the depression caused by the distress of the preceding year; the goods traffic, however, declined by 30 per cent. The efforts to control the Ganges at Goalundo having failed, and the works having been carried away by floods in the autumn of 1875, the scheme has been entirely abandoned, and the line will be shifted wherever the river encroaches. Bengal Railways.

The traffic on the Calcutta and South-Eastern Railway was carried on without interruption and was on the whole improving.

The Durbhunga Railway has been placed on a permanent footing, and an extension has been sanctioned to Mozufferpore. The line promises to be very useful in the conveyance of food-grains.

The good progress made during the year with the Northern Bengal Railway is highly commended by the Lieutenant-Governor. From the northern bank of the Ganges to Julpigoree the length of line amounts to 173 miles, and this was completed to a point 20 miles from Julpigoree, excepting a break of five miles through a low swampy country. Considerable engineering difficulties had to be grappled with; the foundations of all the bridges were, however, laid with great skill, so as to ensure absolute stability. When opened to Julpigoree, it is anticipated that this line will give a great impetus to the progress of Northern Bengal, but there will then still remain the extension to Adulpore, at the foot of the Darjeeling Hills, which will be of extreme importance in the development of European industries in the Eastern Himalayas and in furnishing the means of providing in future against the effects of drought and scarcity. The magnitude of the tea interest may be seen from the fact that the exports from the Darjeeling district reach 4,000,000 lbs. per annum, while the goods and materials imported by planters amount to about the same weight. The length of 33 miles between Adulpore and Julpigoree passes through a well inhabited and cultivated country, rich in natural resources of every kind. The preservation of the State forests in the hills will cause much timber to be brought to market, and this traffic, in which Government has a large interest, will be much facilitated by the extension to Adulpore. The maintenance of European troops at Darjeeling, the Local Government observe, is not only beneficial to their health, but has a useful moral effect on the surrounding country and the neighbouring frontier.

On the Madras Railway there was no increase of mileage during the year. The total capital expenditure up to the end of 1875 was (taking the rupee at 2*s.*) 10,292,699*l.*, being at the rate of 12,010*l.* per mile. The net profits of the year amounted to 1·71 on the above. From the commencement of construction the profits have averaged 2·1 per cent. per annum. A large decrease in the passenger traffic was attributed to the unhealthiness of the year; there was every prospect of the third class traffic reviving. Madras Railways.

From the 1st July 1874 the Great Southern of India and Carnatic Railway Companies have been amalgamated under the title of the South Indian Railway Company. The net profits of the year were 2 per cent. on the capital expenditure, the profits from the beginning having averaged 1·45 per cent. The third class passengers amounted to more than 98 per cent. of the total number. Both the northern and southern extensions of this railway made good progress; the large bridges were being carefully constructed. On the latter extension the section between Trichinopoly and Madura (96 miles) was opened for public traffic on 1st September 1875; and the section between Madura and Tuticorin (98½ miles), together with the Tinnevelly branch (18 miles), was available to the public from 1st January 1876.

There was no addition made during the year to the length of open line on railways under the control of the Bombay Government, but a small extension of the Dakore branch of the Bombay, Baroda, and Central India Railway to the town of Pali was sanctioned. The rebuilding of the railway bridge over the Sabarmuttee river at Ahmedabad, which was swept away by floods, made very rapid progress during the year. The gross receipts of this railway for the year 1875 were 585,454*l.*, and the expenditure was 318,543*l.* A considerable increase in the coaching traffic was due to the visit of the Prince of Wales. The transfer of the railway telegraph to Government was finally arranged. Bombay Railways.

In the case of the Great Indian Peninsula Railway the receipts amounted to 1,973,084*l.*, and the expenditure to 932,786*l.* Here, again, the Prince's visit was the occasion of a large increase in the receipts. But for that circumstance, receipts from the higher classes of passenger fares would have shown a falling off; those for the third and fourth classes were more satisfactory. A further liberal concession was made by the Company for the benefit of the lower class passengers; the charge for extra mileage over the ghâts was abolished, and the fourth class fare of 2½ pies per mile extended over the entire line. In the earnings from goods traffic there was also a considerable improvement, owing to increased carriage of grain for exportation. Several important engineering works were in progress on this railway, such as a new terminus at Boree Bunder, and new workshops at Parell.

The Nizam's State Railway and the Berar State Railway are worked by the Great Indian Peninsula Company. The terms on which this is done having been unexpectedly found to

result in a direct pecuniary gain to the company, which had not been intended, it was in contemplation to revise the agreements in both cases.

Punjab Railways.

The number of passengers on the Sind, Punjab, and Delhi Railway increased in all classes; on the Punjab section the third class traffic showed a decided improvement, owing, it is believed, to the running of local trains to suit this class of passengers, and also to a reduction in the fares. The rolling stock of the company was improved, with a view both to carry increased weight and to afford greater comfort to travellers. The net earnings on this line in 1875 were 199,621*l.*, or about 310,000*l.* less than was needed for the guaranteed interest.

The metre-gauge line from Lahore to Wuzeerabad, on the Punjab Northern State Railway, was opened to the public on the 12th April 1875. The Alexandra Bridge over the Chenab was opened by the Prince of Wales in January 1876. The bridges over the Ravee, Chenab, and Jhelum stood most successfully the heavy floods of the autumn, although the permanent way was in some places injured.

The Indus Valley Railway was delayed to some extent by extraordinary floods of the Sutlej and Chenab rivers, from which, however, the works at the Sutlej Bridge sustained no injury. These floods submerged and wrecked nearly 40 miles of the incomplete line, causing an estimated damage of some 20,000*l.*

North-West Provinces and Oude Railways.

At the beginning of the year, 539¾ miles of the Oude and Rohilkund Railway were open for traffic, and 542¾ miles at its close. The traffic earnings amounted to 275,122*l.*, against 200,402*l.* in the preceding year; and the net profits were 110,849*l.*, against 71,320*l.* There was a satisfactory advance in both passenger and goods traffic.

The Cawnpore Ganges Bridge (25 spans of 110 feet, wrought-iron lattice girders) was completed and opened in the year under report. The opening of this bridge, and of a new junction with the East Indian Railway, diverted to that route some of the through traffic which formerly went by way of Benares, and as that traffic was of a comparatively high class, the loss to the Oude and Rohilkund Railway was not balanced by the increase of low class goods *viâ* Cawnpore.

A project was prepared during the year for the prolongation of the Benares branch by means of a temporary tramway to a station on the left bank of the Ganges at Rajghat, with the object of picking up the river traffic and lessening the distance to the East Indian Railway.

In October 1875 the Hathras and Muttra line was opened for traffic. There was not time to judge of its success, but it was anticipated that it will prove a useful and remunerative undertaking.

No further steps were taken in the matter of the proposed construction of a branch from Moradabad to Ramnuggur. Inquiries were being made into the traffic of the large marts situated near this line, and the Nawab of Rampoor was desirous of connecting his capital with it by making another line of the same gauge 14 miles in length.

Rajpootana State Railway.

On 1st August the Rajpootana State Railway was carried on to Ajmere by the completion of an extension of 48½ miles from the Sambhur Junction. The enormous traffic, both in goods and passengers, which immediately took possession of the line was such as to cause for a time actual embarrassment to the traffic department. On 1st January 1876 the bridge across the Jumna at Agra was opened for broad gauge traffic; and in February the branch of 14½ miles from Ajmere to the military cantonment of Nusseerabad was opened to the public.

This completes the system as far as at present undertaken. Its extension towards Neemuch and Ahmedabad, besides bringing Agra and Delhi 300 miles nearer to Bombay, will greatly benefit those parts of the country where at present traffic is impeded by bad roads, insecurity, and transit duties.

ROADS AND BRIDGES. Bombay.

Much was done during the year in the Bombay Presidency in road construction, and a considerable number of bridges were built or in course of building. One bridge, to cost 70,000*l.*, was begun over the Tapti river at Surat, where the river is 1,700 feet wide. It is to consist of 17 spans of wrought-iron lattice girders, carried upon piers formed of iron cylinders.

Punjab.

In the Punjab the amount of work in the maintenance and repair of roads was unusually heavy in consequence of the destructive floods. Various unmetalled roads were improved and maintained. Of the road between Kangra and Ladakh, the portion within Cashmere over the Lachalang Pass was considerably improved, principally at the expense of the Maharajah.

Central Provinces.

Progress was made with the new road from Jubbulpore to Mandla, which will, when finished, play a very important part in the development of the Chutteesgurh country. Considerable advance was also made on the Saugor Road. Altogether 33,925*l.* was expended on new roads, and 19,081*l.* on repairs.

Progress was made with an important work that had been commenced in July 1874, namely, the remodelling of the southern road from Wurrora to Chanda, which will form a very useful feeder to the Wurda Valley Railway, of which the terminus is the Wurrora Colliery.

MADRAS HARBOUR.

The work of constructing a harbour for Madras, at an estimated cost of 565,000*l.*, was begun during the year, on the design of Mr. Parkes, which consists of a close harbour, providing accommodation for 13 large ships to swing at their moorings, or three times that number if more closely moored, besides smaller craft. The enclosure is formed by two breakwaters of packed concrete blocks of about 27 tons in weight, laid on a rubble base of from 4 to 20 feet in depth, running from the shore parallel to each other, with a space of 1,000 yards between them; after running out for 1,200 yards into seven-fathom water they turn at right angles, so as to leave an entrance of 150 yards. It is calculated that the saving in the cost of landing and shipping goods will more than repay the interest on the outlay.

PAUMBEN CHANNEL.

During the year 2,657 vessels, with an aggregate burden of 269,544 tons, passed through the Paumben Channel; four were British registered ships, and 18 coasting steamers. The number of vessels having decreased and the tonnage increased, it is evident that the channel is being used by a larger class of ships. An island named Mooram Shullee Teevo, at the southern end of the chain of reefs which forms the shelter for the inner harbour of Tuticorin, has been completely submerged by the sea.

OYSTER REEF LIGHTHOUSE.

The Oyster Reef Lighthouse was completed for a cost of 57,813*l.*, or 456*l.* less than the estimate; the light was exhibited for the first time in May 1876.

MARINE SURVEYS.

The first report of the new department of Marine Surveys has been recently issued. Since the abolition of the Indian navy in 1861 no systematic surveys of the Indian coasts had been undertaken, though the increasing coast trade had rendered this aid to navigation a most pressing want. At the instance of the Secretary of State the Government of India took the subject into careful consideration, and after some years' delay the new department, under the superintendence of Commander A. D. Taylor, late of the Indian Navy, was organised on the 25th October 1875. Besides surveying ports, harbours, river entrances, anchorages, &c., the new department is charged with the duty of compiling an annual wreck chart, an annual descriptive list of lights (two of which lists have already been issued, uniform with the Admiralty lists), and sailing directions for the Indian coasts. The superintendent is also consulted on the lighting and marking of sea approaches to all ports and rivers, and on the navigation of rivers, and other kindred matters. The annual cost of the department is under 20,000*l.* Much useful surveying work has been accomplished on the Travancore coast, at Coconada, in the Hooghly and Roohnarain rivers, along the eastern coast of the Bay of Bengal, and especially in the approaches to the Rangoon river.

VII.

MINERAL RESOURCES.

COAL. Bengal.

Investigations made in Orissa with a view to the discovery of coal in places accessible by a water route resulted in disappointment, and the Talchere coalfields will therefore, for the present at all events, be abandoned.

In the Pachamba subdivision of the Hazareebagh district there were five coal-mines at work. In one, worked by the Kurharbari Coal Company, operations were commenced in November 1875, and 600 tons of coal were raised before the close of the year.

The northern portion of the Manbhoom district is believed to be rich in coal, but only two mines were in operation.

Central Provinces.

Coal-mining at Wurrora was prosecuted with vigour. A regular output of coal had commenced, averaging daily 50 tons gross, with every prospect of a steady increase. Two serious difficulties stand in the way of the development of this industry. One is the difficulty of procuring labour. The irksomeness of working below ground is aggravated to the Native workman by the groundless fear of danger, and his habits are also against any constant work. The coolies at Wurrora, as soon as they have saved up a little money, and precisely at the moment when they are becoming really useful, go off to spend their gains at their own homes, and, as they have no stock in trade, it would be useless to enter into engagements with them for a term of service. The other drawback is the large amount of small coal and slack extracted with the larger coal. This coal is practically useless; labour has been vainly employed in getting it, and, when got, there is the difficulty of getting rid of it. Two methods present themselves of dealing with this matter. It is proposed that, if coal-cutting machinery has been found to be successful in England in increasing the proportion of large to small coal extracted, it should be introduced at Wurrora. Another proposal is to utilise the small coal by attempting to convert it into patent fuel, but how this can be done could only be decided by a series of experiments.

Exploration in the Satpura region of the Nerbudda Valley was continued, but so far without success.

The Mhowpani mine was steadily worked, and during 1875 supplied the Great Indian Peninsula Railway with nearly 20,000 tons of coal, a larger amount than in any previous year.

IRON. Central Provinces.

The experiments in Chanda in iron manufacture had not as yet fulfilled the expectations formed regarding them, but this was owing, not to any defect in the ores, but to the quality of the Wurrora coal. It is hoped, if this unfavourable condition cannot be remedied, that the coal will be found suitable for reducing the ore by the "direct" process.

GOLD AND TIN. British Burma.

Metalliferous minerals in British Burma are chiefly found in the Tenasserim division: tin in Mergui and Tavoy; lead in Maingay island, Amherst, and Toungoo; iron in Amherst and Shwe-gyeen; copper and antimony in the hill confines of Toungoo. Gold exists in the Shwe-gyeen river, a limpid stream which flows from the western hills. A special report on the minerals in the north of this division was submitted by the late Mining Geologist in May 1875. After prolonged local inquiries he came to the conclusion that the minute quantities of gold which appear to be found do not come from quartz reefs, nor are they brought down the rivers from their sources; but are sparsely disseminated throughout the granite of the country, where they are found in the disintegrated *débris*.

Tin is the only metal which is worked scientifically and well. The mines to the south of the Mergui district, in the townships of Lenyah and Malewoon, have always attracted considerable attention, and the ore is said to become more plentiful the further south it is followed. A European firm three years ago took a lease of the Malewoon mines, and have opened out roads and imported machinery with a view to their thorough exploitation. Several large and valuable lodes have been struck, pronounced to be equal in yield to some of the best Cornish mines; but the outturn of metal has hitherto been inconsiderable, owing to the time which has intervened in obtaining machinery and the milling furnaces. Large quantities of crushed ore have, however, been collected, and are available for smelting. Elsewhere, the mines are worked by Chinamen, who use no machinery, but excavate cuttings from 15 to 20 feet below the surface, and sift the earth in artificial channels. The metalliferous deposit is then melted in a rude kind of furnace.

VIII.

MANUFACTURES.

Cotton manufacture is carried on in Bengal to a very limited extent. COTTON, Bengal.

Dacca muslin is now only made to order. Three pieces were ordered by a Native gentleman for presentation to the Prince of Wales; each piece measured 20 × 1 yards, but the fineness of the texture was such that the weight was only about 3½ ounces.

In the town of Bombay, and Coorla (a village in the neighbourhood), there were during the year 24 cotton mills working, containing 689,950 spindles and 7,039 looms. In the up-country districts eight mills were at work, with 125,153 spindles and 640 looms. Since the close of the year another mill, with 10,000 spindles, was opened at Nariad, and six more were in course of completion, which would altogether raise the number of spindles to 963,983. These mills do a large trade in yarn and in the coarser cloth, and find ready markets for all they can produce. Bombay.

The number of steam gins was 2,585, being an increase of 206.

In the number of presses licensed and worked in British territory there was a decrease of 28, of which 22 were half presses, and 6 full presses worked by steam. The diminution in the number of full presses was confined to the capital, and was due to the increase of full-pressing up country. Of 1,010,284 bales exported from the Presidency, more than 500,000 were full-pressed before they reached Bombay.

In connexion with this subject it may be here mentioned that there is at Nagpore, in the Central Provinces, an association of Native gentlemen co-operating with societies in the Bombay Presidency with the object of encouraging the trade in country-made clothes to the exclusion of the European manufactures. The association does not aim at any profits at all, but the motive is said to be purely a patriotic support of the Indian manufacture; and the members wear as far as possible only country-made stuffs. This movement shows that the decline of Native manufactures is a popularly accepted fact.

Berar is essentially a non-manufacturing district. The weaving industry, which in former days was the chief occupation of the inhabitants of the larger towns, has gradually given way before the importation of English and Bombay piece-goods, and is now almost limited to coarse descriptions of cloth. Berar.

There were altogether 29 full presses at work, which on an average pressed 7,357 bales of cotton. One press, opened during the year, was the first established under Native management.

Various causes have combined of late years to affect the Bengal silk industry, namely, the growing preference in Europe for woollen fabrics, the competition of Chinese and Japanese silks, the increased production in Italy, and frequent attacks of the silkworms by an incurable disease. There was, however, some prospect of a revival in consequence of a failure during the year in France and Italy. Silk-weaving, although it has shared to some extent the fate of silk-spinning, is still an important industry in Bengal. SILK. Bengal.

A considerable impulse was given during the year to sericulture in the Punjab by the establishment of a factory in the Gurdaspur district for reeling silk from the cocoon, and by the offer of annual prizes by the Gurdaspur District Committee to producers of cocoons. Punjab.

The tussur silkworm being found to exist in considerable numbers in the Gurdaspur, Hoshiarpur, and Kangra districts, experiments were commenced for rearing the worm on a large scale, with a view to the possible development of a new industry in tussur silk.

IX.

TRADE.

FOREIGN TRADE OF BRITISH INDIA.

The total foreign trade of British India (exclusive of Government stores and treasure) during 1875–76 was as shown below :—

	Imports.		Exports.	
	Merchandise.	Treasure.	Merchandise.	Treasure.
	£	£	£	£
Bengal - - -	17,767,175	1,080,545	23,747,060	745,943
Madras - - -	3,891,939	562,352	7,205,840	272,512
Bombay - - -	13,481,086	3,599,057	21,664,437	1,078,912
Sind - - - -	343,067	2,593	1,706,718	13,170
British Burma - - -	1,629,401	56,175	3,734,070	4,607
£	37,112,668	5,300,722	58,058,125	2,115,144
	£42,413,390		£60,173,269	
	£102,586,659			

Compared with the two preceding years,* the results are as follows :—

	1873–74.	1874–75.	1875–76.
IMPORTS :			
Merchandise - - - - -	£ 31,628,497	£ 34,645,262	£ 37,112,668
Treasure - - - - - -	5,792,534	8,141,047	5,300,722
TOTAL IMPORTS - -£	37,421,031	42,786,309	42,413,390
EXPORTS :			
Merchandise - - - - -	54,960,786	56,312,260	58,058,125
Treasure - - - - - -	1,879,071	1,592,721	2,115,144
TOTAL EXPORTS - -£	56,839,857	57,904,982	60,173,269
TOTAL TRADE - - -£	94,260,888	100,691,291	102,586,659

The total trade exceeded by 1·88 per cent. that of the preceding year, which in its turn had exceeded the trade of 1873–74 by 6·82 per cent. The value of the trade of 1872–73, however, was not reached, the circumstances of that year having been abnormal and having left a depressing effect on the transactions of the years immediately succeeding it.

The imports of merchandise increased considerably on those of the preceding year, while in the imports of treasure there was a large diminution. Under exports both merchandise and treasure showed a great advance.

The trade was divided as follows among the different Continents :—

	Imports.	Exports.	Total.
	£	£	£
Europe - - - - - -	34,154,980	36,736,726	70,891,706
Asia - - - - - -	6,550,904	19,255,215	25,806,119
America - - - - - -	207,406	2,059,489	2,266,895
Africa (including Mauritius and Réunion) -	1,156,240	1,798,229	2,954,469
Australia (including New Zealand and Tasmania) -	343,860	323,610	667,470
Total - - -£	42,413,390	60,173,269	102,586,659

* Some of the figures for 1873–4 and 1874–5 have been corrected by the Government of India since last year.

The *total* of the trade with the United Kingdom was 61,146,616*l.* Exports thither increased by 409,383*l.*; while under imports merchandise showed an advance of 1,102,544*l.*, and treasure a falling off to the extent of 2,584,707*l.*, making a net decline of 1,482,163*l.*

Trade with France increased considerably in both imports and exports. The proportion of imports to exports was only as 1 to 6·79; the figures under this head, however, exclude all the trade which is carried on through England.

The trade with Italy and with Austria again showed a large increase; it has made very great strides since the opening of the Suez Canal.

The total value of the trade which took the canal route during the year was 50·16 per cent. of the whole trade.

TRADE. Calcutta.

The value of the trade of Calcutta with foreign countries and with ports in other Presidencies, so far as it relates to merchandise, is compared below with that of the two preceding years:—

	1873–74.	1874–75.	1875–76.
	£	£	£
Imports	15,967,530	19,729,843	19,453,452
Exports	27,056,457	26,974,414	28,246,597
Total £	43,023,987	46,704,257	47,700,049

There was thus, in comparison with 1874–75, a slight decline in the value of the imports, and an advance of 1,272,183*l.* in that of exports. In the interportal trade there was a marked decrease under both heads. A considerable foreign trade has sprung up with Italy and with South America.

The imports and exports of bullion were as follow:—

	1874–75.	1875–76.
IMPORTS:	£	£
Gold	651,540	565,529
Silver	2,236,188	514,846
Total £	2,887,728	1,380,375
EXPORTS:		
Gold	261	67,637
Silver	757,920	678,306
Total £	758,181	745,943

The following are the chief articles of export and import in which variations were observed as compared with the preceding year, those being first noticed in each case in respect of which there was improvement.

The number of chests of opium exported was 46,768, against 45,704; and the price was higher, as already stated (p. 16). In the value of opium exported to the Straits Settlements there was an increase of 271,213*l.*

The removal of the duty from oil-seeds since August 1875, coupled with very favourable crops, led to a further large increase in the exports under that head. The export of linseed to the United Kingdom alone showed an advance in value of half a million sterling. The export of rape seed rose in three years from 100,000 to 900,000 cwt.

The improvement under food-grains was also most satisfactory, the quantity exported amounting to 5,545,006 cwt. against 3,061,702 cwt. The increase occurred under all the important items. The rice trade showed recovery from the abnormal effects of the famine. But the most remarkable feature was the increase in exports of wheat, which advanced from 279,280 cwt. to 1,330,822 cwt. Almost the whole of this quantity went to the United Kingdom; the bulk of it came from the North-West Provinces.

It was stated in the last Report (p. 52) that the exportation of tea was steadily progressing, and will probably soon rank second to opium. In 1875–76 there was a further satisfactory rise. The United Kingdom received nearly the whole of the exports, more than 24 millions of pounds; this was about one-sixth of the amount sent annually from China, whereas a few years ago the proportion did not exceed one-eleventh. The returns seemed to indicate that

new markets were gradually opening for Indian tea. The trade with Australia does not make the progress that might have been expected, that country receiving her tea supplies more cheaply and conveniently from China.

Indigo showed a large increase in quantity, and also, though not a proportionate one, in value.

There was an actual increase in the exports of raw cotton, over three-fourths of the quantity being taken by China, where there was a partial failure of the crop. But the exports to other countries showed a considerable falling off.

A marked decline appeared in the exports of raw jute, owing partly to increased consumption in the country. A larger quantity, however, was sent away in the manufactured state. There were about 15 jute factories in and around Calcutta. From these factories there were exported beyond sea the enormous number of 50 millions of gunny bags during the past year, which are used for packing the wool of Australia and the grain of all sorts in India, Ceylon, the Malay Straits, Egypt, the United Kingdom, and America. The industry took a spring upwards for packing the rice destined for the distressed districts during the famine of 1874. Subsequently it flagged, causing some loss to those engaged in it, and occasioning temporary depression; but it has since revived, and seems to have gained a hold upon the custom of distant countries. It promises to produce a marked economic and social effect upon Bengal.

In the number of hides and skins exported there was a decrease of 1,727,817.

The export trade in raw silk has been rapidly declining during recent years, owing to bad seasons and bad markets, and a further fall took place in 1875–76. Since the year under review, as already observed (p. 37), prospects appear to have improved.

The tobacco trade was stated in the last Report (p. 53) to be fast rising into importance. It received a check during 1875–76, chiefly in regard to exports to the United Kingdom. There would be no reason to doubt the future progress of this branch of trade if greater care were taken in the preparation of the raw material. The quality of the tobacco will probably never be first-rate, but there is a large demand in Europe for inferior qualities.

Saltpetre showed a falling off, and the exports were considerably below the average of the past five years. Only with France was the trade under this head sustained. In consequence of a statement made in the Bengal Administration Report for 1872–73 that the contemplated introduction of the rules for carrying out the provisions of the Salt Act of 1861 would probably altogether close the saltpetre trade, the Government of India were requested to consider whether the new rules for preventing illicit trade in salt could be in any degree safely modified so as to avoid inflicting what might prove a fatal blow on an apparently reviving branch of industry. The preventive system was introduced in the Patna Division in April 1875, and, contrary to expectation, the manufacture showed signs of improvement. The price of saltpetre, however, fell off about one-half.

The exports of sugar have shown a steady decline for some years past. No explanation of this has been furnished, but it has been suggested that the cause is increased local consumption.

The safflower trade also appeared to be on the decline, which is stated to be a matter of much importance to the cultivation in Eastern Bengal. The demand is apparently affected by the competition of aniline and other cheaper dyes.

Turning now to imports, there was a considerable rise in the trade in silk manufactures, chiefly in low-priced French silks. The trade was partly stimulated by the notion that a favourable opportunity was presented by the Prince of Wales's visit to India.

The importations of metals and of machinery largely increased. The latter is wanted more and more for the cotton mills.

The imports of salt, although they largely increased in quantity, declined in value by 146,107*l.*

The overtrading in cotton piece-goods, mentioned in the last Report (p. 53), was followed by a decline during the year under review in the importations both of cotton twist and yarn and of piece-goods. The trade was also injuriously affected by the unfavourable exchange. Woollen piece-goods, on the other hand, showed improvement.

Under malt liquors and spirits there was a considerable falling off. The increased rate of duty on spirits apparently discouraged the importation of cheap brandies, while the hill breweries have probably supplanted to some extent imported ale.

The imports of coal showed a small decrease, but this was a good sign, being apparently caused by the competition of local production.

Owing to the depressed condition of trade, there was a decrease in both the number and gross tonnage of the vessels which entered the port of Calcutta. With the exception, however, of 1874–75, the tonnage was greater than in any preceding year. The decrease in number was entirely in steamers; the number of sailing vessels was greater. While the total tonnage of the latter also showed an increase, there was a decrease in their average tonnage, The number of Suez Canal steamers entering the port continued steadily to increase.

The trade of the port of Chittagong, after improving steadily for several years up to 1873–74, when it reached a total value of more than one million sterling, has since that year rapidly fallen. During 1875–76 the total value was 588,969*l.* The export trade is confined to rice, and the only article of import worth mentioning is salt, which is received from the United Kingdom. Chittagong.

The value of imports into the Orissa ports was 347,376*l.*, and that of exports 327,070*l.* This trade has rapidly developed since 1869–70, although in the year under review it was somewhat affected by the fall in the value of rice, consequent on the abundant harvests in Bengal. The large and steady increase in imports of piece-goods and other necessaries is a good test of material advancement. The bulk of the trade is interportal. Orissa.

The new system of registration of the internal river-borne traffic of Bengal came into force on the 1st September 1875. Some difficulties were experienced in getting so elaborate a machinery into proper working order, but they were overcome, and the system is reported to be a great success. It proved beyond doubt the vast extent of the traffic. There are 24 establishments at which the registration is carried on according to a prescribed and uniform practice. Bengal Inland Trade.

The arrangements for the registration of the inland railway traffic were also completed. The existing arrangements on the East Indian Railway are twofold—first, to register in detail the traffic of the most important railway stations with regard to every item of traffic; and secondly, to register in detail the trade in the most important staples of traffic with regard to every station on the line, both within and beyond the limits of the Bengal province. It is believed that under these arrangements registration of all the most important staples of traffic passing between Bengal and the North-West Provinces is thoroughly effected, and that no more complete system can be satisfactorily organised without a considerable increase in expenditure.

The registration of traffic on the Eastern Bengal Railway is comparatively simple, as almost all the merchandise carried is consigned as through traffic to the terminus in Calcutta.

The traffic along the most important roads is likewise now carefully registered.

The following table sets forth the private trade of the port of Madras (exclusive of that with other ports within the Presidency) as compared with the two preceding years*:— Madras.

—		1873–74.	1874–75.	1875–76.
Imports:		£	£	£
Merchandise		5,210,228	5,218,107	5,992,962
Treasure		826,929	871,163	886,508
	Total Imports £	6,037,157	6,089,270	6,879,470
Exports:				
Merchandise		8,524,458	8,678,532	9,050,677
Treasure		966,969	333,132	316,523
	Total Exports £	9,491,427	9,011,664	9,367,200
	Total Trade £	15,528,584	15,100,934	16,246,670

Excluding re-exports (which amounted in value to 167,422*l.*), the exports of merchandise exceeded the imports by 2,890,293*l.* In the previous year the excess was 3,180,019*l.*

Both imports and exports showed a considerable advance upon those of 1874–75.

There was an increase of 12 per cent. in the imports of cotton twist, and of 6 per cent. in those of cotton piece-goods, which is stated to be possibly in consequence of the lower rates of valuation in the new tariff imparting a stimulus to the trade. In the imports of wines and spirits there was an increase of 39 per cent., notwithstanding the enhancement of the duties by the same tariff. The requirements of the South Indian Railway led to a large increase in the importation of railway stores. The import trade in spices showed the enormous advance of 140 per cent. in value.

Under exports, there was an increase in hides and skins, and in seeds, spices, and oils, and a decrease in indigo. Cotton exports increased, owing to a large demand, and to the favourable prices offered in some places. The exports of food-grains fell, and the imports rose; in these respects there are great fluctuations from year to year according to the harvests, while the cessation of the demand from Bengal also affected the trade in 1875–76.

* The figures given for these years in last year's Report inadvertently included Government stores and treasure.

Bombay.

The private trade of the port of Bombay (including coasting trade with ports beyond the Presidency) is compared in the following statement with that of the three preceding years:—

	1872–73.	1873–74.	1874–75.	1875–76.
IMPORTS:	£	£	£	£
Merchandise - - -	14,180,678	14,860,168	15,149,228	17,096,424
Treasure - - -	2,868,494	3,436,010	4,730,339	3,643,402
TOTAL IMPORTS - £	17,049,172	18,296,178	19,879,567	20,739,826
EXPORTS:				
Merchandise - - -	19,109,139	19,873,499	22,765,502	20,740,321
RE-EXPORTS:				
Merchandise - - -	3,474,379	3,461,343	3,455,902	3,736,979
Treasure - - -	1,666,545	1,253,120	1,061,099	1,559,932
TOTAL EXPORTS - £	24,250,063	24,587,962	27,282,503	26,037,232
TOTAL TRADE - £	41,299,235	42,884,140	47,162,070	46,777,058

The total was thus about 385,000*l.* less than that of the preceding year, though the recovery from the depression of 1872–73, when the trade fell by 8,693,861*l.*, was still maintained.

The increase of imports was partly due to the Prince's visit, but, owing to the adverse rates of exchange, they are believed not to have been profitable. Excluding treasure, the value of exports was to that of imports in the ratio of 6 to 5. In exports there was a decrease. The excess of exports over imports was only half of what it was in 1874–75.

The returns were also affected by the ruling market values of certain dutiable articles having been substituted for the tariff values.

The amount of import duty collected was 621,011*l.*, which gives a per-centage on the value of the import trade of 3·63. Export duty amounted to 34,362*l.*, the per-centage being ·164.

In transactions in treasure there was a decrease to the extent of 588,104*l.*, of which 325,562*l.* was in gold, and 262,542*l.* in silver. The derangement in the silver currency continued seriously to affect the exchange.

The distribution of the imports and exports of merchandise was as follows:—

	Imports.	Exports.	Re-Exports.
	£	£	£
United Kingdom - - - - -	9,666,109	9,032,918	
France - - - - - -	208,643	1,955,012	
Other parts of Europe - - - -	301,135	2,016,272	
China - - - - - -	1,309,243	5,702,505	
Arabia and Persia - - - -	466,844	375,947	
North America - - - - -	58,194	101,956	
Other places beyond India - - -	1,462,270	530,138	
Total of Foreign Ports - £	13,472,438	19,714,748	1,646,141
British Ports in other Presidencies - -	2,458,728	755,181	1,752,525
Foreign Indian Ports - - - -	1,165,258	270,392	338,313
£	17,096,424	20,740,321	3,736,979
Total - - -	£41,573,724		

It will be seen that the exports to China, North America, France, and the rest of Europe exceed in value the imports from those places; whereas the imports from the United Kingdom, Arabia, Persia, and other places beyond India, exceed the exports.

Turning now to some particular items of trade, in the value of cotton piece-goods imported there was a total increase of 361,955*l.*, but it occurred entirely in the finer description of

grey fabrics, and in white and coloured piece-goods, which were required by the exceptional circumstances of the year. The imports of grey-shirtings, long-cloths, T-cloths, domestics, and sheetings fell off considerably, owing to the competition of local manufactures. Of 4,652,423*l.* (the total value of the imports), 3,494,118*l.* represented imports from the United Kingdom alone, the rest coming chiefly from Trieste, Genoa, and Venice. The value of re-exports was 931,630*l.*, and they were chiefly to Eastern Africa, Aden, Arabia, Persia, the Straits Settlements, and Asiatic Turkey.

There was also an increase in the exports of country-made piece-goods from 247,795*l.* to 315,833*l.*, but this increase was not so large as had been expected from the greater number of mills. The great bulk of the increase was in fancy goods of hand manufacture.

Under cotton twist and yarn there was a decrease in imports to the value of 167,522*l.* The difference in quantity was not proportionately so great, which is accounted for by the technical difference in the mode of registering values already referred to. The increase was chiefly in lower numbers, as also in coloured yarns, and was due to the operations of the local mills; in the higher numbers of both mule and water there was an increase. The re-exports amounted to rather more than 9 per cent. of the imports, and were principally to Persia and Aden.

The exports under the same head showed a large increase in value, viz., 142,664*l.* This occurred mainly in exports to China and Japan, where the country twist is said to be in particular favour.

Under raw cotton there was a falling off in both imports and exports. In the former case it occurred in the coasting trade, being due to less importation from Kutch and Kattywar. In exports the decrease was very great, amounting to 2,696,219*l.* in value, and took place for the most part in those to the United Kingdom, France, and Trieste. Those to Russia, China, and Italy showed an increase. Cotton was sent to Belgium, Holland, and Spain, to which countries there had been no exportation in the previous year. The reasons assigned for the diminished export trade of the year are the short crop, increased consumption for local mills, and lower prices in England.

The wheat trade appears to be very capricious. The exports to the United Kingdom showed the enormous increase of 178,156*l.*, owing, it is believed, to the apprehensions of a bad harvest at home at the commencement of the year. The trade with France fell off one-half, while that which had just commenced with Trieste did not maintain its promise, the value of the exports falling from 13,225*l.* to 2,987*l.* On the whole, there was an increase over the exports of the previous year of 61,497*l.*

The trade in oil-seeds was greatly stimulated by the abolition of export duty and by the reduction in the cost of carriage by railway. Notwithstanding lower prices at home, the value of the exports rose from 604,177*l.* to 1,759,833*l.*

The falling off under opium, and the reason for it, have already been stated (p. 17).

The consumption of tea appears to be steadily increasing. The value of the imports during 1875–76 was 211,593*l.*, against 106,940*l.* in 1874–75. The brisk demand at the close of the last-mentioned year led to large importations of inferior quality from China. Next to that country, the principal portion in 1875–76 came from Ceylon and the Straits Settlements.

In exports of coffee there was an increase of 16,587*l.*, of which Turkey in Asia and France took the greatest part.

The following figures show the effect of increased local industry on the requirements for machinery:—

	Value of Imports.
	£
1871–72	126,826
1872–73	236,793
1873–74	355,449
1874–75	519,702
1875–76	742,165

The latter figure represents an importation six times as great as that of 1871–72.

The steady advance in importations of clocks, watches, matches, and umbrellas shows how these articles of domestic use are coming into favour in India.

There was an increase under every head in the number of vessels entered at and cleared from the port of Bombay. In the case of steamers, the increase in number was 112, and in tonnage 71,268 tons. Government having purchased the reclamations on the foreshore known as the Elphinstone Estate, and handed over the property to a Port Trust, the latter obtained sanction for the construction of wet docks, which will be known as the "Prince's Dock,"

the first stone having been laid by the Prince of Wales on the 11th November 1875. The dock will have a draught of 25 feet, and an open channel to the deep water in the harbour will be capable of berthing the largest vessels visiting the port. The docks are estimated to cost about 750,000*l.*, and are already well advanced; they will supply a need long felt at Bombay.

Sind. In the foreign trade of the Sind ports, private imports increased from 291,504*l.* to 345,660*l.*, and exports from 1,081,685*l.* to 1,719,888*l.* The total foreign and coasting trade (private) showed an advance from 3,633,549*l.* to 4,637,406*l.*

Excluding interportal trade among ports within the province, the import trade (foreign and coasting) increased by 263,600*l.* The principal items in which the improvement occurred were cotton piece-goods, sugar, &c., provisions, coal and coke, copper, and raw cotton. The increase under piece-goods would have been greater than it was but for diminished imports from the United Kingdom. The chief decreases were in railway material, spices, grain and pulse, and jute manufactures.

With a similar exclusion of interportal provincial traffic in the case of the export trade, the latter exhibited an increase of 765,424*l.*, of which 638,204*l.* was in the foreign trade. The increase took place principally in rape-seed, raw wool, raw cotton, wheat, indigo, &c. Under seeds the exports of the preceding year were about doubled, the difference in value being 308,419*l.*; the increase under raw cotton was 145,104*l.*, arising principally from larger exports to Hong Kong. It has been above stated that in exports of wheat to France from Bombay there was a great falling off; the exports from Sind to that country showed, on the other hand, an increase of about 235,000*l.*

The increase in steamers in 1875–76 was 42 entering and 49 clearing from Sind ports, and is accounted for by the large increase of trade *viâ* the Suez Canal, and by the running throughout the year of bi-weekly mail steamers between Kurrachee and Bombay, and of weekly steamers to the Persian Gulf.

Punjab. The new system of registration in the Punjab, which was mentioned in last year's Report (p. 57), was continued and improved in 1875–76. After correcting certain errors and omissions in the returns for 1874–75, the trade of the two years may be compared as follows:—

	1874–75.	1875–76.
	£	£
Imports - - -	12,666,350	12,598,165
Exports - - -	6,879,049	5,879,793
	19,545,399	18,477,958

Thus a decrease appeared in the latter year in the imports, and a much greater one in the exports. The latter was partly owing, it is believed, to the traffic of the Indus Steam Flotilla having been placed at too high a figure in 1874–75, but mainly to diminished exports of food-grains, for which in the two previous years the famine in Bengal had created an extraordinary demand. The decrease in the imports was due to the decline of the shawl trade; under all other heads there was a considerable increase. The imports of oil-seeds were double those of the previous year, and the exports rose in quantity from 331,620 to 881,164 maunds. Both the import and the export of tea increased considerably.

In the Report of last year (p. 57) the exports of cotton piece-goods were put down as of Indian manufacture, but it subsequently appeared that 95 per cent. of them were European fabrics.

Oude. During the year ending 30th September 1875, the value of imports into Oude was 1,768,133*l.*, against 1,732,002*l.* in the preceding year; and that of exports 1,331,988*l.*, against 1,352,866*l.* Thus, while imports increased by 36,131*l.*, exports decreased by 20,878*l.*; and the excess of imports over exports was 436,145*l.*

Imports of cotton increased by 48,290*l.*, and of English piece-goods by 35,780*l.* In the imports of country cloth there was a decrease.

The quantity of wheat exported was more than doubled as compared with the preceding year, but in the export of other food-grains there was a decrease.

Ajmere. The opening of the railway to Ajmere has resulted in the greatest benefit to the trade of that town, all intermediate transit dues and similar exactions being avoided, and traders being enabled to deal directly with importers.

There was a material improvement during 1875–76 in the trade of the two towns of this district. The import of grains was nearly doubled. In the importation of cotton piece-goods

there was a considerable falling off as compared with the two preceding years, which is attributed, in some measure, to the overstocked state of the market. There was a large export of cotton piece-goods, consequent on the increase of local manufacture.

Central Provinces.

Compared with the previous year, the total exterior traffic of the Central Provinces shows an advance in value from 7,890,417*l.* to 8,113,619*l.* The figures were the highest on record.

There were increased exportations of wheat for shipment to England and the Continent; the value was 337,667*l.* The trade in this article is stated to be capable of almost indefinite expansion. Information of the requirements of the European market as to the wheat being unmixed with pulses and each description of wheat being kept separate was widely circulated among local growers and exporters.

There was almost double the usual export of oil-seeds. On the other hand, in the export of cotton there was a very large decrease, owing to a deficient crop and low prices.

British Burma.

The trade of British Burma during 1875–6 suffered much depression from political causes, namely, the rumours of complications with Upper Burma, and the intended mission of Sir D. Forsyth. The sea-borne export trade, however, retained its vitality. Under imports, cotton piece-goods decreased in value by 44 per cent., and twist and yarn nearly 40 per cent.

Adding to the foreign trade in merchandise that with ports in the Indian peninsula, the figures stand as follows:—

	1874–5.	1875–6.
	£	£
Imports	4,130,940	3,262,174
Exports	4,661,177	4,986,598
Total	£8,792,117	£8,248,772

The bulk of the foreign trade is with the United Kingdom; next in importance come the Straits Settlements, Singapore being the emporium for the China trade.

Trade with Thibet.

The following was an approximate estimate of the value of the trade with Thibet through Sikkim during the year:—

	£
Imports from Thibet	11,063
Exports to ditto	18,554

To the former must be added jewellery, ornaments, and coined silver, regarding which trustworthy figures were not obtainable.

Trade with Eastern Turkestan.

In last year's Report (p. 60) mention was made of Mr. Russell's caravan as abnormally swelling the trade with Turkestan in 1874. If the value of that caravan (31,000*l.*), and that of the return imports to the end of 1875 (3,000*l.*), be put out of account, the comparison between the trade of the two years, as registered at Leh, will appear as follows:—

	1874.	1875.
	£	£
Imports from Turkestan	38,180	34,270
Exports* to ditto	35,166	45,444
Total	£73,346	£79,714

There was thus a decrease in the imports to the extent of 3,910*l.* This is attributed to three causes. The first is the decreased import of gold dust consequent on the restrictions put on the purchase of gold since the establishment of a mint in Kashgar in 1874. The unsettled state of Kokand may also have had some injurious effect on the trade. But the principal disturbing cause was doubtless the enterprise above referred to, which had temporarily glutted the Yarkund market, thus obviating the necessity for the despatch of goods to exchange for Indian productions.

Under exports there is shown an increase of about 10,000*l.*, and the net increase of the whole of the normal trade was 6,368*l.*

* The figures given under this head are in reality those representing the value of imports from British India, which are in the main identical with exports to Turkestan. The actual value of the latter during 1874 was 14,090*l.* in excess of imports from India, owing to a large quantity of goods having remained over from 1873 in the Leh market, so that a comparison of the actual exports of 1874 and 1875 would convey a false impression.

While the prospects of a moderate amount of business were on the whole encouraging, it was more than ever apparent that quick returns cannot be looked for in commerce with Yarkund. One great impediment lies in the difficulty of carriage. The year under report was marked by the successful completion of the Lachalang Road from the Tsarap river to the top of the pass (*see* last Report, p. 46). The Shayok Valley was also surveyed with a view to opening a new route *viâ* the Shayok river to the Karakorum pass, but the estimated cost has necessitated the abandonment of this project for the present.

Of the total Indian exports to Yarkund cotton piece-goods represented 32·5 per cent., against 24·3 per cent. in the previous year; and a gradual expansion of the demand for this class of goods is apparent. The aggregate value of these exports during the four years 1868–71 was 25,278*l.*, while during the subsequent four years it was 59,129*l.* English fabrics are sold to some extent by Russian merchants in Kashgar.

There is a great demand for tea in Yarkund, where it is as much a *sine quâ non* as opium is in China, and there are indications that the Indian market will be more extensively drawn upon than heretofore. It will be desirable, however, that our merchants should cater to the Yarkundi taste in the preparation of their teas. Green tea is universally preferred to black, and, generally, a strong and pungent tea to one more delicately flavoured. It is also considered that it would promote the sale if the tea were packed in the form of bricks. A large quantity of Lhassa brick tea found its way to Yarkund during the year, but this tea does not find much favour there owing to its peculiar taste.

TRADE THROUGH LADAKH.

In addition to the trade with Eastern Turkestan, a considerable amount of traffic with Chinese territory and with Cashmere passes through Leh.* The value of the total imports at Leh (excluding Mr. Russell's caravan) was 110,051*l.*, against 94,960*l.* in 1874. The local exports from Ladakh in 1875 were of the value of 1,182*l.*, but the corresponding figure for 1874 is not shown separately in the returns. Adding together imports and local exports, the value of the trade through Ladakh in 1875 is set down by the Punjab Government as 111,233*l.*†

		£
*Changthan	Imports	17,577
	Exports	12,113
Cashmere	Imports	12,759
	Exports	15,231

† As the imports into Leh may happen to be heavier in some years than the exports, and as, owing to goods having thus accumulated at Leh, the exports may afterwards exceed the imports, the Government of India think that, to estimate the real value of the trade of Ladakh for any year, the most correct plan is to take the average of the imports and exports of the transit trade and add thereto the value of local exports. Thus calculated the trade of 1875 would stand at 109,221*l.*

X.

PUBLIC HEALTH AND SANITATION.

The total death-rate in the European Army of India during 1875 was 17·48, or, excluding cholera, 14·16 per 1,000. In 1874 the rate was 13·58 per 1,000, the lowest that had ever been recorded. EUROPEAN ARMY.

The year 1874 had been remarkable for the general immunity from cholera; among British troops there were only 12 cases. In the succeeding year the disease prevailed as an epidemic throughout the country. The cases in the European Army numbered 288, and the deaths 194. The ratios compared favourably with those of former epidemics.

In the whole Army only 12 cases of small-pox occurred, of which two were fatal.

Numerous sanitary works were executed during the year for the benefit of the European troops. The system of dry-earth conservancy maintained its reputation for thorough efficiency when properly carried out. Special attention was given to the sanitary supervision of villages in the neighbourhood of cantonments.

In the Bengal Native Army the sickness was less, and the mortality greater, than in 1874. Malarious fevers and bowel complaints caused a large proportion of the sickness. An unhealthy condition prevailed very generally among the sepoys, induced apparently by insufficiency of diet. The food available for them was, as a rule, plentiful, cheap, and of a good quality, but, from motives of parsimony, and in a few cases also in consequence of a religious vow, underfeeding was very common. NATIVE ARMY. Bengal.

Of 132 cases of cholera, 58 were fatal. Only 34 cases of small-pox were treated, showing that the men were well protected.

It was found that marching and camp life produced a most beneficial effect on the health of the men. Tree-planting was also much resorted to, experience having shown that trees planted with certain precautions prove advantageous to health by preserving the purity and increasing the moisture of the atmosphere, as well as by protecting from extremes of temperature, and affording a grateful shade by their foliage.

The conservancy of cantonments and regimental lines, and of latrines, appears to have been carefully attended to. The water-supply in general was abundant and of fairly good quality.

Considering the great prevalence of cholera amongst the civil population in 1875, it is remarkable that in the Madras Native Army there were but 88 seizures, and 34 deaths. As some of the regiments were quartered in stations in which the disease was very prevalent, such an immunity could not be considered as merely fortuitous, but it was probably due in a great measure to the various sanitary improvements which had been carried out in the lines, and to the care exercised over both men and followers during the prevalence of an epidemic. Madras.

Malarial fevers and lung diseases produced the largest number of deaths, and next to these came bowel complaints.

Great attention was paid to conservancy of wells, and the water-supply was generally favourably reported on.

During the four years 1872 to 1875 there was a progressive annual diminution in the statistics of sickness in the Bombay Native Army, showing apparently that the measures taken to preserve the health of the soldiers have borne some fruit. Bombay.

The mortality of 1875, however, was greater than that of 1874; the principal cause of this was the epidemic of cholera which prevailed amongst a portion of the troops.

As in the other Presidencies, malarious fevers were the principal cause of sickness.

Vaccination was thoroughly carried out, and only infants of tender age remained unprotected. There were no deaths from small-pox.

The supply of water was reported good and abundant; many of the waters were analysed, and some improvements made. The lines everywhere were kept clean, and the conservancy and sanitary arrangements, as carried out by cantonment committees, were generally satisfactory.

The system of registration in selected areas was continued in Bengal, but the figures cannot, it is stated, be accepted as even approximately correct. They varied only slightly from those of the two preceding years. Some measures were determined on with a view to the improvement of general registration. HEALTH OF GENERAL POPULATION. Bengal.

A census was taken of the town of Calcutta in April 1876, on the basis of which the death-rate of that town for 1875 would be 35·08 per 1,000.

No single district in the province escaped altogether from cholera, and in some the disease

was in operation all the year round. More than one-fifth of the total mortality was attributed to this cause.

Small-pox was also present in every district. It was, on the whole, very mild in character, and considerably less fatal than in 1873 and 1874. Only 5,280 deaths were reported to have occurred in 1875, against 10,933 and 12,056 in the two preceding years.

On the whole, fever was marked by diminished severity. By far the largest proportion of the fever of this province is of malarial origin, and the specific fevers of Europe are seldom met with or recognised except in Calcutta and its neighbourhood.

Madras. The year was characterised in the Madras Presidency by a prolonged and trying hot season. The rainfall was at the same time below the average, and very much less than in 1874. The most notable result of these peculiarities was a deficient supply of potable water, and this, combined with the depressing influence of a long sustained high temperature, had an injurious effect on public health, which was also greatly disturbed by a very severe epidemic of cholera, and by the prevalence of small-pox and fever.

Deaths from cholera numbered 94,657. Small-pox was universally diffused, but the number of deaths (24,787) was less than in any year since 1871. Fever deaths amounted to 252,131; the mortality from this cause is said to have been increasing year by year since 1868. Under bowel complaints 37,613 deaths were registered.

Bombay. In Bombay there were 47,555 deaths from cholera among the civil population, out of 96,012 attacked; in the previous year there had been only 37 deaths.

The fever deaths were 219,156 in number, exceeding those of any past year of registration.

Punjab. The total number of deaths registered in the Punjab was 130,495 in excess of the number in 1874. The great bulk of the increase was under the head of fevers, to which 279,841 deaths were assigned, being 89,210 more than in the preceding year. There was an enormous mortality from remittent fever. Deaths from bowel complaints increased from 16,407 to 27,550. The cholera mortality stood at 6,246, against 78 in 1874. Under small-pox there was an advance from 12,026 to 13,594 deaths; compared with 1873, however, the mortality from this cause continued to show a remarkable diminution, which is distinctly traced by the authorities to the effect of vaccination.

North-West Provinces. Cholera prevailed in all parts of the North-West Provinces except Jhansi and Lalitpur in the south and Kumaon in the north.

The mortality from small-pox fell from 93,247 to 25,819. The usual great mortality was recorded from fevers. Bowel complaints were the cause of 80,337 deaths, against 60,865.

Oude. The cholera deaths in Oude, which in 1874 had numbered 68, rose in the year under report to 23,321.

Small-pox occasioned 5,612 deaths, being 9,618 fewer than in 1874. The decrease is probably due in part to defective registration, and in part to the fact that every great epidemic is followed by a lull, the number of possible victims being reduced by previous years' outbreaks. Vaccination has made too little advance to receive any of the credit.

Central Provinces. The mean death-rate of the Central Provinces was returned as 26·32 per 1,000, being an increase on the rate for the previous year of 2·83. The increase was the result chiefly of the great prevalence of cholera and small-pox.

In the course of the five years intervening between 1869 and 1875 cholera had been very slight and limited to small areas, but in 1875 it became widely prevalent, and although the mortality it occasioned was not so great as in 1869, cases occurred in every district of the province with the exception of Damoh.

Berar. Cholera was more general and more severe in Berar than in any other province of India; the deaths from this cause numbered 22,465. No efforts were spared to alleviate the sufferings of the people and to check the spread of the disease.

The small-pox deaths numbered only 927, being fewer than in any year since 1871. There were 26,076 deaths registered under fevers, and 20,818 under bowel complaints. The mortality from the latter cause continued to hold its high place in this as compared with other provinces.

British Burma. In British Burma there were only 761 deaths reported from cholera, which did not assume an epidemic form anywhere but in the town of Bassein.

The mortality from small-pox was only 752, as compared with 1,191 in 1874, and 1,416 in 1873, and it was less than during any previous year of which there is a record. In no case did it assume an epidemic form; the greatest number of deaths was in March, at which season the inoculators do the greatest part of their work, and the lowest number in November. Vaccination contributed in some degree to the comparative immunity of the province from small-pox, the improvement being marked wherever an interest was taken in the work.

It is conclusively shown by the Sanitary Commissioner for Bengal that the mortality from small-pox was highest in the towns and districts in which inoculation was practised, and was lowest where the Act prohibiting inoculation was in operation. VACCINATION. Bengal.

The practice of inoculation is stated to be hedged round by religious rites and ceremonies rendered sacred by the practice of ages. Again, inoculators from other parts, knowing how the minds of the people are disposed, step in and supplant the ex-inoculators in the villages where their forefathers have practised before them, and as a consequence the ex-inoculators are compelled to revert to the old system rather than suffer in their means of livelihood.

In the province of Bengal there were 988,858 persons vaccinated, being an increase of 29,185; in some circles the increase was considerable, while in others there was a marked falling off. The total was vastly less than that required for the protection of the population; the results achieved, however, in the opinion of the Government of Bengal, continue to afford just grounds for encouragement.

There is stated to have been less difficulty than formerly in persuading the people to accept vaccination.

There was a slight improvement in the number of females vaccinated. On the other hand, in the number of infants there was a falling off; the parents are said to be prejudiced from their experience of the risks of inoculation.

The ratio of success in primary cases was 97·2 per cent., against 96·53 in the preceding year.

In Madras there was a considerable falling off both in the number of operations and in the ratio of success; the former was 381,412, and the latter 93·89 per cent. The prevalence of cholera is said to indispose the people to submit themselves or their children to vaccination; while, further, the employment of vaccinators in many districts as distributors of cholera medicines appears to have interfered with their proper work. Madras.

Vaccination in the Bombay Presidency was considerably extended, and at a comparatively less cost than in any of the seven preceding years. The number of operations was 808,353. There were 22,573 more infantile vaccinations than in 1874–75; the whole of the increase (18,822) in primary cases having been among infants. The per-centage of success in primary operations was 97. Bombay.

The total number of vaccinations performed in the Punjab during 1875–76 was 440,394, which showed a considerable falling off. Punjab.

Although opposition was generally diminishing, it was very strong in some parts. In the Delhi district it was frequently met with, but was overcome. In the large town of Panipat the people had formerly been violently opposed, but, through the able assistance of the tahsildar and the municipal committee, over 1,000 children were vaccinated, a good many of whom were Rajpoots. In the city of Kurnool nothing could be done for several days, but eventually about 600 children were operated on; here some of the members of the committee showed a very bad example by sending their families away. In many parts of the Umballa district the vaccinators were gladly welcomed. There was decided improvement in the district of Umritsur; in the city some members of the committee gave excellent help, while others were either indifferent or opposed; indeed, out of 36 only 5 took any interest in the work. Much opposition was encountered in the Ferozepore district, chiefly where the Sikh element predominated. In Peshawur city the work proceeded far more satisfactorily than formerly.

In the districts south of the Sutlej, where the Hindoo element greatly preponderates in the population, the prejudice against vaccination is very strong, and there the mortality from small-pox continued great. In the district of Gurgaon, in which Sitla, the goddess of small-pox, has a famous temple, no less than 2,741 small-pox deaths were registered. In Jullundur, Gurdaspur, and other districts the people have become so sensible of the advantages of vaccination that it is not uncommon for them to petition the authorities to send vaccinators for their children. In these districts the small-pox mortality was trifling.

The Superintendent-General in the North-West Provinces observes that the people have to pass through three stages upon the introduction of vaccination; the first, that of terror, when the mothers hide their children in the fields on the approach of the vaccinator; the second, that of apathy or mild dislike; the third, that of a belief in its efficacy. Kumaon perhaps may be said to have arrived at the third stage; Rohilkund to be passing into it; and the other three circles to be still in the second stage. The first stage, he thinks, has been finally left behind everywhere. North-West Provinces.

In 1874–75 the number of vaccinators in the province was 401, and the number of persons vaccinated was 494,928. In 1875–76 the number of vaccinators was 453, and they performed 529,207 operations, being an increase of 34,279. It is satisfactory to notice that the increase occurred chiefly among the high-caste Hindoos.

Oude. In Oude the number of operations was 27,656, and the ratio of success 84·47 per cent. The Natives are reported to be thoroughly opposed, and their minds do not appear to be becoming more enlightened in the matter.

Central Provinces. The number of operations in the Central Provinces was 222,633, being 23 per cent. above the number of the previous year. Among the primary cases the ratio of success averaged 95 per cent. The high ratio of success in secondary cases (71·4 per cent.) appeared to show that a considerable portion of the adult population was not protected. The effect of vaccination in reducing the mortality from small-pox was evident in certain districts.

British Burma. The year showed some progress in British Burma in regard to vaccination, but not such (the Chief Commissioner observes) as might well have been achieved had ordinary diligence and activity been exercised.

The people of Burma have a very great prejudice against inoculating or vaccinating infants; children under one year old are seldom or never inoculated, although, on persuasion, they are allowed to be vaccinated. Against vaccination itself they have no deep-seated prejudice, but they regard it as a weak form of inoculation, and are not satisfied when they see that it is not followed by vesicles scattered over the body, but that the eruption is confined to the points of insertion. The inoculators of course persuade them that it is not equally efficacious, because, if vaccination *gratis* became general, their fees would cease; and their emoluments are chiefly derived from the after treatment of the disease which they originate.

Hospitals and Dispensaries. Bengal. The number of charitable hospitals and dispensaries in Lower Bengal at the close of 1875 was 207. Two were closed and six new ones opened during the year. These figures do not include the temporary institutions in the Burdwan, Beerbhoom, and Midnapore districts.

The advantages afforded in the medical schools and colleges of Bengal to those studying medicine are stated to be gradually attracting a superior class of students, which will have a favourable effect on the future management and usefulness of dispensaries. The institutions appear to be steadily growing in favour with the people.

The proportion of income derived from local funds increased from 19·93 to 27·82 per cent. The subscriptions from Europeans rose from 2,386*l.* to 2,528*l.*, while those from Natives fell from 10,833*l.* to 10,569*l.* The financial position of the institutions generally was very satisfactory.

Bombay. All the officers employed in charge of the Bombay institutions are reported to have worked well and zealously.

In contributions for dispensaries from local funds there was a creditable increase, as also in private subscriptions; but municipal contributions showed a considerable falling off.

While the statistics show that 1875–76 was a very unhealthy year, they also prove that the dispensaries did excellent and useful work, and were much appreciated by the sick poor.

Punjab. The statistics for the Punjab for several years past show a steadily increasing appreciation of dispensaries, and confidence in the European method of treating disease. The number of institutions rose in 1875 from 136 to 150; in 1874 there had been an increase of 16.

The attendance at the whole of the institutions aggregated 1,037,835, being an increase of 143,568, and this increase was among all classes.

The contributions from all sources increased; those from municipalities by 4,238*l.*, from Europeans by 119*l.*, and from Natives by 186*l.* Towards the completion of new wards in the Delhi dispensary 430*l.* were contributed by the Native residents of that city; of this, 200*l.* was received from the representative of one gentleman who had bequeathed a large sum to be expended on objects of charity. This dispensary also receives liberal support from a wealthy citizen, Lala Mehr Chand, who supplies food and country medicines to a certain number of indoor patients.

Oude. In Oude there was a satisfactory advance in the number of patients. The institutions are shown to be gradually gaining favour with the people. That their popularity depends in a great measure on the demeanour of the medical practitioners was illustrated in the case of the Sitapur dispensary, which stood low in the scale of usefulness, owing to the brusque manner of the Native assistant-surgeon, until, during the last three months of 1875, it rose, under the medical charge of another officer, to head the list; the total applications for relief during 1875 were 11,186, against 7,743 in 1874.

British Burma. A considerable increase in attendance in British Burma is stated to be due, not to increasing unhealthiness of the country, but to the growing confidence of the people in the efficacy of European medicines.

The progress of the dispensary in the Northern Arakan Hill Tracts was most satisfactory, the patients having increased from 404 to 1,441.

The steady progressive increase in the asylum population of Bengal has attracted serious attention. Since 1868 the average yearly increase has been 62·5. The Government of India have issued instructions to the effect that probably many of those in confinement would be better with their friends, and that asylums should be reserved only for criminal lunatics, lunatics who are absolutely dangerous, and those who, having no friends or belongings, may be in the acute stage, in which there may be the greatest hope of recovery. In the carrying out of these orders, the Government direct that care be taken to ascertain that harmless lunatics left in the charge of their friends are not maltreated or subjected to any objectionable restraint; while every facility will be given for the reception of such persons in asylums, provided the relatives are willing to pay for them such rates as will entirely cover all charges incurred on their behalf. LUNATIC ASYLUMS. Bengal.

The admissions in 1875 were apparently from the most impoverished and necessitous classes of the community; of the total, 79·42 per cent. were males.

Reviewing the results of the year generally, the Surgeon-General remarks that they could hardly have afforded more positive evidence of the favourable conditions in which the insane under treatment have been placed, whether for the cure of their mental derangement by skilled attention to every detail, or for lessening the hardships of their sad lot by gentleness and kindness.

In the asylums of the Madras Presidency (three in number) the per-centage of recoveries increased from 45·29 to 51·97, while the mortality decreased from 14·50 to 11·27, as compared with the preceding year. Madras.

At the Madras asylum outdoor labour for the patients was largely resorted to with manifest advantage, and at the same time a great deal of useful work was done in the way of gardening, cleaning, and sweeping the grounds, drawing water, and repairing roads, hedges, and drains. Various indoor industrial pursuits were also attempted, and the superintendent hoped to be more successful in these in future. The band of one of the corps in garrison was permitted to play in the asylum grounds once a fortnight, and some of the patients seemed to thoroughly enjoy the performance. The usual Christmas dinner was given; and, owing to the liberality of subscribers for this treat, the superintendent was able to add to the pleasures of the day by introducing jugglers, Native dances, fireworks, and illuminations. The library was kept in good order, and various books were added to it during the year. Similar remedial measures were also adopted at the other institutions.

The health of the lunatics at the Delhi asylum was, on the whole, good, and although cholera prevailed in the city and neighbourhood of the asylum from the beginning of May to the end of November, no case occurred in it. Punjab.

The following account is given of the diversions supplied for the patients: "Every inducement is given to the lunatics to amuse themselves in any way they can, and for this purpose "kites, toys, tom-toms, sittars, &c., are provided for those who care for them. The women "have pet pigeons, rabbits, and lambs; swings are also erected for their amusement. On "Sundays all are treated to either sweetmeats or fruits in their season. This treat is looked "forward to by them, and in cases of misbehaviour it is withheld as a means of punishment."

The lunatics are freely indulged in tobacco at certain hours daily, and their friends are permitted to visit them as often as they wish. On the whole they are said to be as happy as their miserable state will allow.

No manufactures have been attempted, but the males were employed in gardening, in keeping the ridges and walks neat and trim, and in any other light labour to which they could be induced to turn their hands. The women do a little spinning of cotton thread, &c.

Cleanliness and conservancy are reported to have been fairly looked after. While it is impossible that these should be so rigidly attended to as in a jail, owing to the extremely filthy and irregular habits of many of the inmates, both barracks and latrines are as far as possible kept clean and free from smell.

At the Lahore asylum, too, gardening is the chief occupation. There are three or four rooms for weaving common cloth, but all attempt to increase labour in this direction involves too much loss to Government.

The value of occupation and amusements in the successful treatment of insanity is well borne in mind at the Rangoon asylum. It is stated that many of the articles in the work-sheds are excellent samples of skill. A beneficial and tranquillising effect is produced on the patients by the efforts that have been made to render the surroundings more homelike and of more individual interest. The recreation ground, where the excited and violent male patients take exercise, and which was formerly a bare uninteresting spot, was during the year carefully laid out, levelled, and turfed, and the walks were planted with shrubs. The improvement in the demeanour of the patients attracted, it is said, the comment of all who were familiar with it. British Burma.

MEDICAL SCHOOLS. Bengal.

The medical schools in Bengal were five in number, new schools at Dacca and Cuttack having been opened during the year. Except in the English department in the Medical College, the instruction in all these schools is given in the vernacular. The Dacca school was well attended, and promised to be a very useful and popular institution. The Cuttack school is intended to supply a want which has for some time been felt, owing to the distance of Orissa from the higher educational institutions of Bengal.

Madras.

The reports of the Madras Medical College for the sessions 1874–75 and 1875–76 were very favourable. The success that attended two ex-students (British) in competing in England for the Indian Medical Service affords additional testimony to the sound teaching and training that have for so many years distinguished this college. It is, however, regretted that the advantages offered by the college do not draw a larger number of students. The insufficient knowledge of English possessed by the Native pupils is another subject of regret.

The Madras University has instituted a new degree of Licentiate of Medicine and Surgery, which, from involving a less demand than the present degrees upon the time and previous education of the students, will, it is believed, attract a considerable number of candidates. Young men desirous of qualifying for the L.M. degree will have to undergo a course of professional training at a recognised school of medicine to extend over a period of four years, or else one year's training at a hospital or dispensary and three years at a medical school.

North-West Provinces.

An experiment which had been made in the North-West Provinces for the training of female Native doctors having been proved to be a failure, orders were given during the year under report for the closing of the school established for that purpose at Bareilly. Dr. Corbyn, to whose exertions the existence of the school was due, himself pointed out in the following words the reasons for abandoning the attempt:—

"Another year's working of the school obliges me to confess that, while the European and "Eurasian pupils have more than fulfilled my expectations, I feel more strongly than ever the "obstacles in the way of utilising the Native ones; not that they do not learn quickly and "intelligently, for indeed their progress is remarkable, but when they are sufficiently educated "to act independently, they do not seem to command the same confidence and respect that "the European women do; Native prejudices regarding the sex hamper them at every step. "If they go out into the world unmarried, they are looked down upon, and all sorts of "difficulties arise as to whom they are to live with. On the other hand, if they are married, "the chances are the husband will insist on their being entirely engaged on household duties, "and will object to their pursuing the calling for which they have been fitting themselves."

Oude.

Several dismissals took place during 1875–76 in the Bulrampur school for carelessness and inaptitude to learn the medical profession. The Principal says that greater strictness will have to be used in future in admitting candidates, though of course it is not easy to ascertain what a lad will turn out before he is tried.

On the whole, the Principal was not dissatisfied with the first batch of students who had just terminated their curriculum. Many of them came from illiterate classes. They were very imperfectly trained to start with, and they were therefore unacquainted with the simplest facts of science. They had not only to understand and remember innumerable facts in various branches of the complicated medical course, but also to learn and remember a vast number of new terms foreign to their own language. The professors, he adds, did their duty with zeal, and spared no pains in teaching the students.

SANITATION. Bengal.

Progress in the sanitary improvement of towns in Bengal continued, and, though few very large and costly works were undertaken of a purely sanitary character, there were signs everywhere of activity in promoting minor improvements in connexion with drainage, water-supply, conservancy, &c.

The municipal income of towns is very small, and considering the demands which have to be met as first charges against it, such as maintenance of police, making and repairing of roads, lighting, &c., there is but a small balance left, even in the more flourishing towns, for new works.

The Calcutta Municipality obtained a loan from Government for proceeding with the completion of the drainage of the town according to Mr. Clark's scheme.

An important sanitary measure of the year was the appointment of a health officer for the Port of Calcutta. The duties of the office are laid down as follows:—

(1.) To superintend the sanitation and conservancy of the port.

(2.) To board all vessels arriving in port with infectious disease on board.

(3.) To inquire into disease among the shipping in the harbour, and into the sanitary condition of vessels.

(4.) To inspect pilgrim vessels before departure, and grant certificates upon which bills of health will be issued by the Commissioner of Police.

Scarcely any information has been received of sanitary works in the Madras Presidency, but an interesting comparison was instituted by the Sanitary Commissioner between the death-rates of particular towns and the expenditure in those towns on conservancy, with the result that those municipalities which spent the most show the lowest rates of mortality. Madras.

Mr. Clark's scheme for the drainage of Madras town was submitted in April 1875 to the Government of Madras, by whom it was favourably received. The Red Hills water-supply is stated, notwithstanding its imperfections, to be an incalculable blessing to the town.

Although sanitation generally in this Presidency is in an extremely backward condition, signs of improvement are perceptible in many directions.

A great deal appears to have been done in the city of Bombay during the year both in conservancy and in sanitary works. The Carnac Bunder nuisance is said to have been to a great extent rectified. Bombay.

No accounts have been received of civil sanitary works in the Presidency generally.

Projects of water-supply were under consideration for Delhi, Lahore, and Rawulpindee. In the latter case it is stated that the people were most impatient to have it carried out, the inconvenience experienced from the present scarcity of water in that town being very great. Punjab.

Under the orders of Government, the Sanitary Commissioner held conferences with 18 district committees, with a view to impressing upon them the necessity of improving the sanitary state of the villages under their respective jurisdictions. He prepared a pamphlet describing the history, and embodying the elementary principles, of sanitary science; and he accompanied the reading of this pamphlet with ocular demonstrations of the effect of sewage on water. The members were then encouraged to ask questions and to offer any objections that occurred to them, which were discussed patiently and considerately. Dr. De Renzy was most agreeably surprised at the interest which these meetings seemed to excite, and the pamphlet was in such request that it was necessary to print 22,000 copies of it for circulation among the village population. "Before the sanitary evils of the province can be effectually "dealt with," Dr. De Renzy observes, "the people must be informed of the nature and "extent of these evils. Any attempt to force on sanitary improvements, the need of which "would not be appreciated or understood by the people, must inevitably fail. The conferences lately held will, I believe, ultimately be of the greatest use in directing the minds "of the people to sanitary evils, of which they had previously no conception."

The most important improvement in the North-West Provinces was the continuation and further extension of the drainage works which are being carried out for the improvement of the canal irrigated country of the Doab. This work was pushed forward with great vigour during the year. North-West Provinces.

The Meerut drainage scheme was in course of active prosecution. As the work is perfected, a great amount of water will be carried away from the site, and it is hoped that the ratios of mortality will be sensibly decreased in coming years.

In the Terai a considerable amount of good work was effected in the way of drainage works, for the purpose of doing away with swamps and marshes in the neighbourhood of centres of population.

In many towns which the Sanitary Commissioner visited he noticed very great improvement as compared with their state at his previous inspections a few years back. Moradabad had made such an advance in this respect since 1868 "as to be hardly recognised as the "same."

No works of any magnitude were undertaken during the year in the Central Provinces, but improvement of the towns in respect of cleanliness, conservancy, and drainage was carried on. To conservancy measures of all kinds, however, the lower classes are everywhere most averse, and every step in advance is therefore up-hill work. Central Provinces.

The conservancy system which was introduced in Nagpore in 1873 continued to work well. Considerable improvements were effected in the drainage of certain parts of the town and in the Sitabuldee bazaar, but a comprehensive scheme of drainage for the town, which is much required, cannot yet be undertaken for want of funds, the cost of the new waterworks being still a heavy burden on the finances of the municipality. The water service was being extended to different parts of the town; the people appeared fully to appreciate the abundant supply of good water.

XI.

EMIGRATION.

EMIGRATION. To the Colonies.

There was a very great falling off in the number of emigrants despatched from Calcutta to the British Colonies during 1875–76. In some cases (Mauritius, Trinidad, and Jamaica) this was due to reduction in the demand; but in the case of other colonies great difficulty was experienced in obtaining the supply required, especially of females. For Demerara it was not possible to procure more than about half the required number. Despite all the lessons of the famine, the people in the densely populated tracts were almost as unwilling as ever to emigrate. The Protector of Emigrants remarks that, when there is no famine or serious scarcity, the terms offered by the colonies are not sufficiently attractive. In the case of Demerara in particular, although the rate of wages and other advantages offered appear to be sufficiently liberal, the fact of a free return passage not being guaranteed until after 10 years' residence in the colony operates as a deterrent to emigration.

The demands from the French Colonies of Guadeloupe and Martinique appear to have been fully satisfied, except that it was impossible to make up the prescribed proportion of females. Emigration to French and Dutch Guiana remained suspended, on account of the great mortality which had occurred among the Indian labourers in those colonies. In some instances it appears that thay had been set to work in the gold mines, a description of labour which was not contemplated in their contracts, and which entails much hardship.

The following figures show the total supply, as compared with that of the two preceding years:—

——	1873–74.	1874–75.	1875–76.
Number admitted to depôts - - -	29,267	23,393	11,126
Do. despatched to colonies - - -	24,569	20,230	9,251

A danger resulting from the difficulty of obtaining emigrants is the temptation to a keen competition among the recruiters, accompanied with misrepresentation and fraud. The vigilance exercised by the Emigration Department with a view to prevent these abuses led to the cancelling of 6·44 per cent. of the whole number of licenses, against 2·18 per cent. cancelled in the previous year.

Of the emigrants despatched, 4,382 are said to have been recruited in the North-West Provinces, 2,306 in Behar, 1,861 in Oude, and only 338 in Bengal proper and Orissa. An increased number were recruited in Nepal and other Native States.

The return emigrants numbered 2,674, of whom about two-thirds came from Mauritius, 443 from British Guiana, and 268 from Jamaica.

The death rates were as follows, compared with those of the preceding year:—

——	1874–75.	1875–76.
In depôts - - - - -	0·33	0·26
On outward-bound ships - - - -	1·4	1·74
On homeward-bound ships - - -	2·2	4·41

The decrease of mortality in depôts of late years is very satisfactory. On board ship the arrangements for promoting the health and comfort of the emigrants during the year received careful attention, and the per-centage of mortality was generally very low; in two cases, however, it amounted to the seriously high figures of 5·35 and 7·10 respectively. The high rates on returning vessels are accounted for by the number who are placed on board as invalids.

From Madras there was a decrease in emigration to the British Colonies, only one ship, carrying 294 emigrants, having proceeded to Mauritius, and none to any other colony. Eight vessels sailed from Mauritius, with 1,247 return emigrants, and one from Natal with 383. The deaths during passage amounted to only 10.

There was no emigration from the port of Madras to any of the French Colonies, but from Pondicherry and Karikal three ships sailed for Réunion with 1,047 emigrants, one ship for Cayenne with 427, and one for Martinique with 470. This was about 61 per cent. below

the emigration of the previous year. Five ships arrived with return emigrants; among 352 who left Réunion there was one death, and of 784 from the other two colonies 62 died.

To the Tea Districts.

The number of labourers despatched to the tea districts was 29,314, against 21,690 in 1874–75, and 25,811 in 1873–74. Owing to the increased demand, there were 294 more licensed recruiters than in the previous year. A large number of those registered as willing to emigrate either absconded or at the last declined to proceed. This is believed to be partly due to fraudulent practices on the part of the recruiters, but partly also to the fact that sometimes coolies proposed to emigrate simply with a view to having their expenses to Calcutta paid.

Of 10,420 who proceeded to Cachar and Sylhet, 7,490 were free emigrants, that is, not contractors' coolies. This fact is noticed as encouraging with reference to the future supply of labour to the tea districts. The increasing extent to which whole families emigrated was another satisfactory feature.

The districts from which the supply was principally obtained were, as formerly, those of Western Bengal and Chota Nagpore.

The per-centage of mortality in depôts was favourable as compared with the statistics of the two previous years. There were also improved results during the passage to Assam, owing mainly to its shorter duration, and to the provision of additional warm clothing and shelter.

To British Burma.

The expectation that by the scheme of State emigration to British Burma the Bengal districts afflicted with scarcity would be benefited was not fulfilled. The Calcutta Agency was closed on the 31st December 1875, and the field of recruitment was transferred to Madras, where it was believed that labourers better adapted to the requirements of British Burma could be obtained at a less expense. Besides the want of any spontaneous movement among the people, an additional hindrance lay in the general unwillingness on the part of the magistrates to forward the cause. Some entertained a strong dislike to the emigration of their people; others were probably prevented by press of business from taking up the subject with any earnestness; others were unwilling to use their authority in collecting people from a fear of its abuse by subordinates; while in other cases the class of people whom they desired to part with was by no means that which employers of labour desired to receive, namely, such persons as were unable or unwilling to work for their living at home.

Though cultivators by caste and profession, the Bengalees failed to give satisfaction, and the probability is that they can never be induced to devote themselves to the monotonous routine of tillage in a foreign land, where high wages are so readily obtainable. The most valuable agricultural settlers, as well as the most tractable and industrious people, are the inhabitants of the hilly districts of Chota Nagpore; but it was found impossible to obtain these, as they were already held in high estimation by the planters of the tea districts.

A very small proportion of the immigrants were afterwards unaccounted for, and this result the Chief Commissioner regards as satisfactory, considering the frequent easy opportunities the immigrants had for returning to their own country, and the natural distaste among that class of people to settle in a foreign land.

The reports with regard to sickness and mortality were very satisfactory.

The immigrants generally preferred simple coolie labour, and in only one case was their agency utilised under a regular engagement, when a Rangoon company employed a large body in speculations connected with the reclamation of waste lands.

Most of them found employment on the extensive railway and other public works, a few took service as policemen, some took to domestic employment, and not many to agricultural pursuits. It is hoped that, after they have amassed a little capital of their own, they will turn their attention to forming settlements for agricultural purposes. To British Burma this influx of labourers is a great boon, the population being very sparse, and the demand for labour great in every branch of industry.

XII.

EDUCATION.

STATE OF EDUCATION. Bengal.

Whereas in 1874–75 there was an increase in Bengal (not including unaided indigenous patshalas) of 1,050 schools and 36,015 scholars, there was in 1875–76 an addition of 376 of the former and 30,891 of the latter. The number of pupils, therefore, rose in a much greater proportion than that of schools, so that, although the actual increase of institutions was less, the statistics indicated the increasing stability of the system of education. While in the former year there were, on an average, 34 new pupils to every new school, the corresponding addition in the latter year was 82.

The proportion of boys known to be at school per 1,000 of the population was 12·4.

The policy of the Bengal Government is to foster pretty equally every kind of education, from the lowest to the highest. The annual expenditure on education amounts in all to rather over 400,000*l.*, of which 190,000*l.* is contributed by the people, and somewhat more than one-half by the State. The higher English education which leads to the Entrance examination is that to which the people contribute the greatest share, namely, 70 per cent. of the total cost; to middle education 63 per cent., or the same proportion as they pay towards female education; to middle vernacular education they contribute 55 per cent.; and 46 per cent. to the patshalas. Of collegiate and special education the chief cost is borne by Government, the people's share being 42 per cent. for the former and 21 per cent. for the latter.

Of the total number of scholars, 71 per cent. were in primary schools, which rose in number during the year by 346, with an increase of 27,209 pupils. The increase was almost entirely in the new patshalas. In the primary schools the principle of keeping the standard of instruction as low as possible was adhered to. This is intended to be done until the whole of the poorest classes shall have been brought under some kind of instruction. In the meanwhile all who have time or means for learning more are encouraged to resort to schools of a better class. With this view an intermediate class of schools was established in 1875, ranking between the primary and middle class, and the success of these schools showed that their object was appreciated. They will be found, the Lieutenant-Governor believes, to supply a want which has long been felt; they will attract the best and most promising pupils from the patshalas, who might have hesitated to enter a middle school, but who will imperceptibly be led onward through the agency of these schools to the higher stages of education.

The statistics of the middle class schools went to prove that an education which includes some acquaintance with English is now more popular than that which is restricted to the vernacular.

The complaint is reiterated by the Local Government that the youth of Bengal resort almost exclusively to two professions which are overstocked, the law and the public service, although other professions are fast expanding. The dislike of manual work creates a strong prejudice against the practical study of mechanics. Some progress, however, was apparent in connexion with technical education, certain efforts having been made spontaneously by the Natives themselves, though it still remains to be seen whether they will lead to practical results. On the occasion of the visit of the Prince of Wales to Bankipore, near Patna, the Native Chiefs and gentlemen of Behar formed a scheme to commemorate the event by founding an industrial institution at that place, and subscriptions were promised to the liberal amount of 20,000*l.* The Bengal Government agreed to allot 600*l.* annually as a grant-in-aid to this institution, on the condition that the subscriptions, invested in Government securities, should yield at least an equal sum.

The number of pupils at the Calcutta School of Art declined in consequence of the fees being raised. The medical profession appears to be becoming popular; the institutions all over the province were crowded by students.

Madras.

The number of institutions in connexion with the Government Department in Madras rose from 9,151 to 10,236, and the number of scholars from 255,737 to 284,480. In the former case the increase was really greater than appeared, owing to a difference in the mode of preparing the statistics.

Twelve middle class schools were added to the higher class, and a large number were transferred to the lower class. There were in consequence altogether 38 higher schools, not including collegiate schools, while the number of middle schools was changed from 455 to 281. The lower class schools increased in number from 3,306 to 9,528. Elementary education being in a very backward state in this Presidency, the Government were devising measures for its promotion.

Bombay.

Satisfactory progress was made in Bombay in the matter of education. The total expenditure incurred during the year in connexion with schools administered by Government

was 239,654*l.*, of which 113,632*l.* was granted from the Imperial revenues, and 71,833*l.* was raised by a cess on the land revenue.

From municipalities less assistance was received than usual, except in Sind, where the municipality of Sukkur set a good example by taking over all the vernacular schools belonging to the town. The Sukkur municipality also pays a large contribution for English schools supported by provincial funds. The other municipalities in Sind are also liberal in their grants for education.

Of the expenditure, 38½ per cent. was devoted to primary boys' schools, 8½ per cent. to middle class, and 10⅘ per cent. to high schools.

The number of Government, aided, and inspected schools increased by 144, and the scholars by 12,026, the figures for the year being 4,478 and 250,712 respectively. The average daily attendance also increased from 177,547 to 186,834.

Vernacular schools for boys and men numbered, at the end of the year, upwards of 4,000. There was an increase of 140 schools during the year. The increase was only rendered possible by the exercise of strict economy. Owing, the Government observes, to the want of sufficient funds, all that can now be done is to improve existing schools by substituting for inefficient teachers certificated men from the Poona Training College.

The number of middle class schools was 160, with about 17,000 scholars. The chief tests of the efficiency of these schools are the examinations for certificates qualifying for public employment; the number of successful candidates during the year was 430 for the first class, and 1,239 for the second class certificate, against 373 and 928 in 1874. The examination returns of the Inspectors also showed that the schools, with few exceptions, had made progress in efficiency.

In higher and middle class schools there were 9,593 boys learning English, or 259 more than in the preceding year. The desire to learn English gives most sign of development in the capital itself. The number learning Latin rose from 242 to 289, and Persian from 757 to 835, while in regard to Sanskrit there was a falling off from 2,742 to 2,648.

With a view to supplement the knowledge acquired in childhood, night schools are established in some of the larger villages. Of these there were 87, with 2,650 adult pupils. They are not, as a rule, reported of very favourably, but some of those in or near Bombay are stated to be useful to operatives of the cotton mills.

Besides the schools connected with Government, there were about 3,330 indigenous schools. The information imparted in them is very meagre, and the masters dislike interference.

Among special colleges, the Grant Medical and the Poona Civil Engineering Colleges particularly distinguished themselves. On the working of the former the Principal reports that the result of the past year "will bear comparison with the most successful year of the "30 which have elapsed since the foundation of the institution." Fifty-nine freshmen were admitted to the college classes, which, added to the number left after the University examinations, brought the strength of the graduate and undergraduate classes up to 194—"a number "unparalleled in the history of the college, and all the more remarkable seeing that the fees "paid by a student amounted to Rs. 625 for the full curriculum." In the University examinations the proportion of successful candidates was larger than in any previous year. The students of the Civil Engineering College were remarkably successful at those examinations. Out of 12 candidates for the L.C.E. degree 9 passed, of whom 3 were placed in the first class.

Punjab.

The number of Government institutions in the Punjab (exclusive of the University College) was 1,585, and of those receiving grants-in-aid 480. The figures show an increase of 67 in the former, and a decrease of 22 in the latter; but this apparent decrease was due to several schools having been transferred from the latter to the former class. The total number of scholars on the books at the end of the year was 115,284. The number of Government primary schools increased from 1,218 to 1,264, and the attendance from 59,984 to 61,131.

The question was under consideration of abolishing the Delhi College, and of utilising the savings for strengthening the staff of the College at Lahore, and for other educational improvements. The staff of both colleges being inadequate, it was thought that it would probably be better to maintain only one, and to make that one thoroughly efficient. It is said that the sons of the higher, and especially the official, classes wish to learn English, and the insufficiency of the teaching power at the colleges has hitherto been a difficulty in the way of meeting this demand.

Government schools sent up 58 candidates for the Entrance examination of the Calcutta University, and aided schools 41; of the former 30 passed, and of the latter 22.

A School of Industry and Art was opened at Lahore during the year, the object of which is to convey to Native students such knowledge of painting and drawing as may assist them in their special trades, and especially to develop, by improved methods of workmanship, the Native manufactures of India.

North-West Provinces.

The information received regarding the state of education in the North-West Provinces during 1875–76 is very meagre. The attendance in Government colleges showed a considerable increase, and so did the number of candidates for the University examinations. In the number of village or hulkabundee schools there was an increase of 49, and in the number of scholars an increase of 1,055; and the district school committees were reported to take a hearty interest in elementary education.

Oude.

The total number of schools in Oude increased by 49, and the scholars by 5,820. Of the former, 42 were Government schools, 5 aided, and 2 unaided; in the last-mentioned class of schools there was a decrease in attendance. The pupils generally belonged to the higher castes.

The expenditure from all sources on education was 54,009*l.*, being an increase on the previous year of 1,707*l.* The expenditure from private funds advanced from 8,855*l.* to 9,875*l.*

In respect of primary instruction the village schools held the first place in both number and importance. A stimulus was given to them by the revision of the course of study, and the progress of the pupils was very satisfactory. A rule was introduced during the year that a village teacher's salary shall not depend upon seniority of service, but upon the number of pupils he can keep in regular attendance. It was reckoned that one man could not do justice to more than 30 or 35 boys, and when the attendance exceeds that limit, he is to be allowed an assistant teacher, without suffering any reduction in his own salary.

It was decided that the efficiency of middle class schools should be tested annually by a public examination, which will be to those schools what the University Matriculation test is to higher schools. The examination will be held at five different centres.

Higher education does not seem to be very popular in Oude. Much difficulty is found in inducing students to remain long enough in the schools to enter the matriculation classes.

Ajmere.

In Ajmere there was not much advance during the year in education, so far as increase of schools or attendance is concerned, but there was evidence of increasing efficiency in almost all classes of schools; and certain measures were under consideration for simplifying and popularising elementary instruction. A very large share of the work of education is performed by the Presbyterian Mission. The Government and missionary schools numbered respectively 36 and 88, and the scholars 1,934 and 2,897. Of the whole number of boys of a school-going age, about 17 per cent. were under tuition; in the North-West Provinces the ratio was 1 to 9, or 11 per cent.

The report of the Ajmere College was favourable, both as to attendance and efficiency; owing, however, to the staff not being strong enough to spend sufficient time on the upper classes, and also to the University examinations having increased in severity, the success in regard to the latter was not quite equal to that in the preceding season.

The City School, which had been maintained by the municipality experimentally for one year, proved so popular that it was taken over by Government, the municipality still making a grant of 180*l.* a year towards its maintenance.

Central Provinces.

Satisfactory progress was made in the Central Provinces, and a sound foundation of primary education is stated to have been laid there. As was the case in the previous year, there was, with a decrease of Government primary schools, an increase of scholars. Government middle class schools remained unchanged in number, while in them also scholars increased. Besides larger numbers on the rolls, there was better attendance and also improved scholarship in all classes of schools.

Aided private schools, too, made progress, and unaided schools increased in number. In the latter, as far as is known, the instruction given is not particularly good, but the best of these will, as soon as they have reached the required standard, come into the class of aided institutions. The Government now spends as much as it can afford in the Central Provinces on public instruction, the further development of which must (the Chief Commissioner observes) be very gradual, and can only be looked for with the general spread of intelligence. The policy of Government will be to encourage indigenous schools opened by the people themselves, supported mainly by them, and looking for aid only in the shape of a payment according to results shown.

In the preceding year arrangements had been made for improving the status and efficiency of normal schools. Already in 1875 these measures were bearing fruit; more and better teachers were sent out from the male school, and at the female school there was a larger number of women under instruction, and they were more carefully supervised and trained.

With a view to giving to education a practical turn, industrial classes were established at the normal schools, whence those instructed would proceed to village schools, and there open similar classes for imparting instruction to the villagers in the improved methods known at present only in the towns. The addition of this element to the instruction given in village schools will, it is believed, render them much more popular, while it will certainly make them more useful.

Education in Berar is not in a satisfactory condition. One reason is that in past years disproportionate attention had been given to high and middle class schools, while the diffusion of primary education among the masses was comparatively neglected. Measures have recently been taken to remedy this defect by the reduction of schools not coming up to the standard of the class in which they stood. The inefficiency of the teachers and irregularity of the pupils are other drawbacks. The latter evil is partly unavoidable in an agricultural country like Berar. Berar.

Besides 236 indigenous schools (in 61 of which payments by results were made to the teachers), there were 462 Government schools, with 22,117 pupils; the numbers in the preceding year having been 456 and 22,084 respectively. The high schools were well reported on, and sent to the Bombay University the largest number of successful candidates on record.

In Coorg there was a slight decrease, confined entirely to the aided and unaided schools, in the number of pupils under tuition. At the Mercara Central School there was a considerable increase of attendance. Coorg.

With a view of exciting a more active interest in education among the people, panchayats (or school committees) of a few of the more influential men in each nad (or subdivision) have been formed. The duties of each panchayat are to promote the interests of the school by securing a good attendance and bringing to notice all irregularities, also to attend to the repairs of school-houses. This measure gives promise of being both popular and useful.

This year, like the two preceding it, was marked in British Burma by considerable advance in educational matters. Three fresh appointments were made to the inspecting staff, and its operations were extended to every part of the province, including six new districts. Two additional middle-class schools were founded; and a system was initiated of annual competitive examinations with very attractive prizes attached. While Government schools increased from 24 to 26, Missionary schools under supervision rose from 27 to 33, and all other classes of inspected schools from 1,143 to 1,147. The aggregate of pupils attending all these schools was 38,447, or 1·37 per cent. of the population of the province. British Burma.

The indigenous schools comprised 874 monastic and 255 lay institutions. The cause of education in British Burma is closely interwoven with the work of the monastic order. The priesthood, with all the powers and privileges it confers, is no exclusive caste, but is open for ingress or egress to every orthodox believer. It prescribes no kind of asceticism, but only enjoins a life of purity, temperance, and truth. The work of national instruction was probably undertaken, not with any motives of influence, favour, or advancement, but with a view to qualify catechumens, or as a means of simple intellectual diversion. In course of time it came to be regarded as the peculiar function of the order, and lay schools, where both sexes are taught, were probably designed not to compete with but to complete the machinery of the monastic seminaries. Every Burman boy is brought up under the discipline and control of the village recluse, to whom the family authority is temporarily delegated. He is housed and clothed and fed in the kyoung, and the parents are put to no trouble or expense throughout the whole period of his tuition. The master, as a rule, is strict and peremptory, yet sufficiently attentive to the moral and physical well-being of his pupils to earn their continuous attachment and esteem. His teaching aims at no high standard and has a strong religious tinge. With all its defects, the system is ready at hand and is popular, effectually securing all the benefits of discipline, diligence, and habits of punctual attendance. It seems only natural that the poongyees should regard with suspicion any foreign intrusion on their own domain, and should prove an actual obstruction in the way of any permanent mental progress. The present State policy is one of kindly help and conciliation.

The results of the Calcutta University examinations were very disappointing. Of 1,819 candidates sent up from 175 schools, only 566, or 31 per cent., succeeded in passing. The result was least unfavourable as regards Government schools, from which 37·6 per cent. passed. In the First Arts examination only 25 per cent. of the candidates were successful, and in that for the B.A. degree only 23·5 per cent. The examiners attributed this general failure to a want of careful and accurate preparation, the students having trusted too much to their memory without mastering the subjects. The students themselves put the blame on their teachers, and the Lieutenant-Governor appears to think that there may so far be truth in this that the multiplication of superior schools is in advance of the supply of adequate teaching power, for which dependence must be mainly placed on the English universities. Universities. Calcutta.

The Entrance examination still appeared to be to many the goal of their educational career. Of those who passed it only one-fifth passed the First Arts, and of the latter number only one-half obtained the B.A. degree. With a view to remedy this fault, it has been decided that the possession of a degree shall in future, as a rule, be considered necessary for superior appointments in the service of Government.

Madras. At the University Matriculation examination in Madras there was an increase in the number of candidates, but a great falling off in the proportion of those who passed, and the number of first-class men was much smaller. These results are put down to the unusual severity of the test in English, and to the introduction of physics and physical geography. A large increase in the number that came up for the First Arts examination was likewise attended with discouraging results, the number who succeeded being very little larger than in the previous year. The candidates for the B.A. degree rose from 85 to 105, and those who passed from 55 to 67.

Bombay. The examination for matriculation at the Bombay University was easier than usual; the increase in the number of candidates presented was only 154, while the increase in the number of those who passed was 172. The numbers were 1,269 and 434 respectively. The improvement was shared by all classes of schools; among students under private tuition the ratio of success rose from 1 in 17 to 1 in 8. More than half of the successful candidates joined one or other of the affiliated colleges, thus evincing their intention of pursuing their studies further. For the higher examinations the figures were also satisfactory, the number of passed candidates having risen from 150 to 173. This favourable result was, however, limited to the special faculties, the Arts faculty having shown a falling off.

Punjab University College. For the Entrance examination of the Punjab University College 159 candidates presented themselves, of whom 75 passed; and for the Proficiency in Arts there were 13 candidates, of whom 3 were successful.

MAHOMEDAN EDUCATION. Bengal. The number of Mahomedan boys under instruction in the province of Bengal increased from 87,917 to 91,223, the increase occurring almost entirely in elementary schools. In the University examinations, the law classes, the civil engineering classes, and the School of Art, Mahomedans formed a merely trifling proportion; on the other hand, in the Survey School at Patna and the Medical School at Bankipore, a considerable majority of the students were Mahomedans. It is stated by the Government that other signs are not wanting that the reluctance of the Mahomedan community to accept the higher education offered by Government is surely, though slowly, giving way. In the Calcutta Madrissa, 653 out of 991 pupils were learning English, while in the Dacca Madrissa a larger infusion of Western learning was introduced by the desire of the students themselves.

Bombay. In the schools connected with Government in the Bombay Presidency the number of Mahomedans increased from 24,310 to 26,277. The Principal of the Elphinstone High School reports that some of his best pupils are among the Mahomedans. On the other hand, the attendance at the special classes established for Mahomedans in the Bombay and Poona Anglo-vernacular schools was somewhat disappointing.

North-West Provinces. There was a falling off in the attendance of Mahomedans in the middle and lower schools of the North-West Provinces; while in high schools and colleges it remained unchanged, and in special schools greatly increased.

Berar. There is found to be great difficulty in the Assigned Districts in inducing Mahomedans to take advantage of the arrangements provided for their education. They are, as a class, poor and illiterate, and the parents generally have no desire for their children's instruction.

FEMALE EDUCATION. Bengal. Female education in Bengal was encouraged by the formation of scholarships for girls, and by the appointment of Mrs. M. Wheeler (a Native lady) as inspectress of female schools and zenana agencies. There was no increase during the year in the number of schools, but the number of girls in inspected schools rose from 15,654 to 18,425, the increase being chiefly due to the satisfactory circumstance of larger attendance at the aided primary schools. In the Deccan Division there were four zenana associations, composed of educated Native gentlemen, the object of which was to promote female education at home. These associations are believed to be doing very useful work. A great deal of domestic instruction of this sort appears to be carried on throughout the province amongst the higher classes, but the middle classes do not think the instruction of their wives and daughters worth paying for. To this fact an exception is found in the Brahmo community, amongst whom female education receives active and liberal support.

Madras. In Madras this branch of education was in a comparatively flourishing condition. The number of schools increased from 269 to 304, and of pupils from 19,582 to 23,793. In addition to these, some large schools are supported by the Maharajah of Vizianagram, and are under Government inspection.

Bombay. The interest taken in girls' schools in the Bombay Presidency is stated to be becoming a little more real. A school established in the capital met with large support from Native gentlemen, and the Telugu community set up a school themselves under trained female

teachers. The number of girls learning English in private schools was also increasing, having reached to between 800 and 900. In the Northern Division improvement was apparent in examination results; in the Southern Division the schools, with some exceptions, were poor.

The school at Kolhapore has been put on an improved footing, and arrangements have been made for the attendance in it of ladies from the palace and of the wives of Sirdars. A new female teacher from the Poona Normal School has been appointed to teach Marathi under the general supervision of Miss Moysey, governess to the ranees.

In Sind there was improvement in both attendance and results.

Punjab. In the Punjab there was an increase of two in Government female schools, and a falling off of five in aided schools. The great majority of the people see more harm than good in educating women. Many gentlemen of position are said to interest themselves in the movement more from loyalty than conviction, desiring to stand well with the Government, who they believe have the cause of female education at heart.

North-West Provinces. Compared with the two preceding years, a steady decrease appeared in the North-West Provinces in the number of girls' schools and of pupils in them. The falling off in the former amounted to a little over a quarter, and in the latter to about 14 per cent.

Oude. There were 94 girls' schools in Oude, of which 93 were primary, and one was of the middle class. The latter is the only good school for girls in the province; the teaching in it is Anglo-vernacular. Of the primary schools 76 were under Government, and 16 under private management; the teaching in all was equally imperfect.

Central Provinces. The progress of female education in the Central Provinces was discouraging. Both the schools and pupils decreased in number, and the quality of the instruction was not improving. Of nearly 3,000 girls borne on the register, less than 400 could read at sight and write from dictation. In the present state of Native society and feeling, the Chief Commissioner does not look for anything like speedy improvement in this direction.

British Burma. The attendance of female pupils in British Burma increased from 2,680 to 3,528; in addition to the latter number there were 97 girls at the mixed Government cess schools. The progress is entirely due to the growing popularity of private seminaries, to which extensive aid is afforded, the proportion of Government pupils having been considerably reduced.

The main difficulty still lies in the want of an efficient teaching agency. The social independence and energy of females in Burma prevent the obstructions common to other provinces being thrown in the way of their enlightenment.

LITERATURE AND THE PRESS. Bengal. The Bengal vernacular press maintained the same general tone as was noticed in the previous Report (p. 77). It was in many cases marked by an increasing querulousness, which however, Sir R. Temple observes, must not be mistaken for disloyalty, as at heart the Bengalees are thoroughly loyal, and show, under all circumstances, a steady and law-abiding spirit.

Among the books published, a biography written by Srimati Surangini, wife of the Principal of the Sanscrit College at Calcutta, is specially noticed, as pointing to the growth of intellectual tastes among Native ladies.

Bombay. The number of works registered in Bombay during 1875 was 735, of which 103 were in English, and 433 were original works. A political pamphlet by a Native author, in English, on the "Revolution at Baroda," is stated by the Reporter on the Native press to be "of "considerable importance." The general tone of the publications was reported to be unobjectionable as regards morality and loyalty.

The list of newspapers amounted to 61, against 55 in the previous year. Most of them have no special object, and are largely occupied with questions of social or religious interest, and with local grievances, such as the decay of Native industries, cases of the police courts, and the faults of the railway or municipal authorities. Last year there were topics of interest in the floods of the Sabarmuttee, the Deccan riots, and the opening of arbitration courts. The death of the Rao of Kutch called forth expressions of regret; and many of the Native papers spoke with feeling of the death of Dr. Wilson, and of the loss thus caused to science and to the cause of progress.

British Burma. The Central Book Depôt, which was opened during the preceding year in Rangoon, with agencies in the several districts, for the sale of educational works and appliances, was very active in its operations during 1875–76; up to the end of that year 12,661 volumes had been sold, realising 790*l*.

Efforts were made to explore and utilise the rich and varied treasure of Buddhistic manuscripts which have long been lying unnoticed in every Burman monastery. The deputy inspectors of schools during their tours in the interior prepared lists of the Pali and

Burmese writings they encountered, and reported the conditions under which copies are available for the proposed library at Rangoon. A condensed list has been arranged and submitted to the Chief Commissioner, and there is every prospect of an interesting collection being formed.

The Rangoon Literary Society in its 16th annual report showed a steady progress; besides the Government grant-in-aid of 30*l.*, receipts from various sources aggregated 261*l.*; the disbursements amounted to 268*l.*, of which 76*l.* went in working expenses, and the rest was expended in improving the library.

The "Education Gazette" did not appear to be a success from a financial point of view.

XIII.

NATIVE STATES.

Hill Tipperah.

Although the Rajah of Hill Tipperah was still labouring under financial difficulties, some progress was made in several directions in the administration of the State. The Rajah showed a laudable desire to restrict his expenditure, dispensing with wasteful and extravagant displays and reducing the number of useless retainers; he was, however, still surrounded by many persons whose influence was obstructive to social and administrative advancement. An improvement in the revenue enabled him to make considerable remissions to the cultivators at the foot of the hills whose crops had been damaged by inundations. There was increased efficiency in the administration of the law. Serious crimes were comparatively rare.

The Rajah at length began to show a real interest in education, which was in an extremely backward condition, there being only four schools, with 173 pupils, in the whole of the State. Changes were made in the staff of teachers; orders were issued to enforce attendance; and it was in contemplation to institute several new schools, including one for girls.

Cooch Behar.

A favourable account is given of the administration of the Cooch Behar State under the general direction and supervision of the Deputy Commissioner. The results in regard to education, and in other departments also, compare favourably with those of British districts. The public library is stated to be far in advance of any other similar institution in Bengal outside Calcutta. This State possesses the great advantage of a sufficiency of funds for expenditure on all useful purposes.

Tributary Mehals.

In the Tributary Mehals under the Bengal Administration the season was good, and the people prosperous and contented. On a visit by the Commissioner to the Sirgoojah estate, not one person had any complaint to prefer. The administration of justice was conducted very creditably by the Chiefs; only three appeals from their decisions were put forward. Serious crime continued to be rare; but the practice of carrying arms, with that of drinking to excess, led to some hasty acts of violence.

The quietness that usually prevails among the feudatory Chiefs in relation with the Central Provinces was somewhat disturbed in the case of Bastar. The Rajah set out from Jagdalpur, his capital, for the purpose of being presented to the Prince of Wales, leaving in charge two men who were peculiarly obnoxious to the people. He had not gone far when commotions occurred which rendered it expedient for him to turn back; and on his way he was met by a large number of villagers, who demanded the dismissal of the two ministers. The Rajah, in alarm, ordered his soldiers to fire on the villagers, who fled in all directions, leaving eight dead and wounded. A few days afterwards Jagdalpur was completely invested by some thousands of persons, who flocked in from the surrounding villages, armed with very miscellaneous weapons. The Rajah with some difficulty managed to send word to the British authorities, upon which some European officers, with a small force, were despatched to Jagdalpur. The arrival of the officers seemed to satisfy the villagers, who, on being assured that their grievances would be inquired into, were easily induced to disperse and go quietly to their homes. It was a remarkable feature in this incident that those concerned in the rising, although belonging to a wild and excitable race, showed throughout the utmost moderation and forbearance; they even scrupulously restored to the Rajah some treasure which had fallen into their hands.

In the last Report (p. 80) it was mentioned that three of the tributary estates were under British management, owing to the misconduct of the Chiefs. Khairagurh continued to improve, and the people were contented and prosperous. The whole of the debts have been paid off, and funds will in future be available for communications and other works of improvement. In Patna also, signs of progress were everywhere visible. A new settlement was made, which almost doubled the revenue, but was nevertheless fully agreed to by the people. Cultivation greatly increased; vaccination progressed, and the people were far from hostile to it; the dispensary did useful work; and some advance was made in the schools. There was hardly time for much to be done in Sakti, but the British officer in charge inquired into the sources of revenue, made a land revenue settlement, and arranged for the proper administration of justice.

The Cuttack Mehals in Orissa were for the most part well managed by their respective Chiefs, and good progress was made in opening out the resources of the country. Except in a few of the minor States, the people were described as prosperous and contented.

The actual number of offences reported showed an increase as compared with the previous year, but the increase occurred in the Banky estate alone, and the great majority of the cases

reported were petty assaults, thefts, and acts of mischief. Serious offences against property were of rare occurrence, and there were no cases of dacoity. Such crime as occurred was promptly dealt with; in some of the States an organised police force is maintained.

One middle class and seven lower vernacular schools were opened during the year, and the number of pupils on the rolls was 2,899, against 2,679 at the close of 1874–75. The Chiefs of Keonjhur and Dhenkanal especially exerted themselves to extend the benefits of education to their people. The same Chiefs were complimented by the Government on their generally enlightened and liberal administration.

Cashmere. Sir Henry Davies recorded, in anticipation of the close of his administration of the Punjab, his acknowledgment of the loyal and friendly spirit which had been uniformly evinced by the Maharajah of Cashmere in furthering the wishes and policy of the British Government. He also observed that the Maharajah is doing his utmost to develop the great resources of his country.

The depression in the Cashmere shawl trade continued, and so did the efforts made in consequence to supplement the revenue by the cultivation of silk and of hops.

A museum of Cashmere products and manufactures was being formed at Srinuggur, and it was intended to have a second at Jummoo, and a third in London, so that purchasers may select their samples at the latter and give their orders accordingly.

The Maharajah visited Calcutta to be present at the arrival of the Prince of Wales, and the Prince was afterwards splendidly entertained by the Maharajah at Jummoo.

Simla Hill States. There was little to notice during the year in regard to the Simla Hill States. The administration of Sirmur was creditable, the Rajah having made every effort to develop its natural resources. He spent large sums of money in iron foundries, which, owing to the difficulty of carriage from the mines, had not so far proved a financial success; the experiment was, however, considered by the Punjab Government to be one well worthy of every encouragement.

Puttiala. The Maharajah of Puttiala went to Calcutta on the occasion of the visit of the Prince of Wales.

This enlightened ruler (Mohindar Sing) died on the 14th April 1876. During the last months of his life, owing to his failing health and to accidental causes, the affairs of the State had fallen into some disorder, but with this exception his administration was a remarkably efficient and successful one. It was conducted mainly on the British model.

Kupoorthulla. Owing to the mental infirmity of the Rajah, the State of Kuppoorthulla was under British administration. The road connecting the capital and Sultanpur was being raised and metalled. A new college and dispensary were opened, and a residence for the Rajah at Jullundur was approaching completion.

Bhawulpore. Bhawulpore continued under British management. A large amount of work was done in opening out new lines of canals and protecting the country against inundation.

Rajpootana States. The year was distinguished in Rajpootana by visits, first from Lord Northbrook, and later from the Prince of Wales. The Prince's visit and intercourse with the Chiefs elicited unmistakeable signs of loyalty and respect.

The Chiefs of Jhallawar, Serohi, and Kerowlee died during the year. In the first of these States the adopted heir was a minor. There were altogether five States under the direct administration of officers appointed by the Government of India, viz., Oodeypore, Ulwur, Kotah, Dholepore, and Jhallawar.

Throughout Rajpootana the autumn harvests were on the whole plentiful, although in some places the crops were damaged by the violent rains and floods which occurred in September.

The country generally was unusually quiet. Gang robberies and violent crime have on the whole much diminished, owing mainly to the cessation of internal political disorders.

The Mayo College was opened on 1st October 1875, and on the 1st April following there were 23 on the rolls. The first student entered was the young Maharajah of Ulwur, who is reported to have done credit to the college training. The Chiefs of Jodhpore and Jeypore have given the institution their active and influential support; the former has sent to it his brother, a remarkably clever boy. The new Chief of Jhallawar also joined, and the representative of another noble family was expected.

Oodeypore. The administration of the Oodeypore State by Colonel Herbert was judicious and popular while the Maharana gave every promise of proving hereafter a good ruler. The members of the Regency Council were beginning to discuss questions and to give their opinions with increasing confidence.

An experiment introduced in the previous year of fixing the revenue demand at a money rate for a term of ten years in certain districts did not succeed, and the old system of levying

the dues in kind has been reverted to. When the crops had been ruined by excessive rain and the revenue was nevertheless demanded, the cultivators of a hundred villages set off in a body for Malwa with all their property, followed by the collectors and the money lenders, who both entreated them to stay, but did not attempt to use force of any kind. The cultivators eventually dictated their own terms.

Jeypore. In Jeypore little violent crime came to light, and education made good progress in the capital. The expenditure on public works amounted to 61,796*l.*, the largest sum yet expended in any one year; the outlay on irrigation was twice as great as it was in 1874–75. The Maharajah is said to have the hereditary taste of his family for public works and the architectural embellishment of his capital. Sanitation appeared to be limited to the city. An ample supply of good drinking water has been ensured by the completion of the water-works. The city has been partially lighted with gas. The jail sustained its good reputation. The Mayo Hospital was opened by the Viceroy in December.

Jodhpore. In Jodhpore also crime decreased, especially dacoity. The arrangements of the jail were commendable. The dispensaries were in good working order, and vaccination steadily progressed.

Kotah. Nawab Sir Faiz Ali Khan continued to show firmness and ability in his management of the Kotah State. In his administration of the finances he attained great success. He reported that he had in two years realised 422,052*l.*, and expended 395,681*l.*, of which 151,756*l.* was disbursed in the payment of debts. The judicial returns showed an increase of crime, which, however, is attributed to the institution of a regular system of police reporting.

The rainfall was good, but the crops were under the average. Notwithstanding the latter circumstance, grain was so abundant that there was no sale for it.

Bhurtpore. The administration of justice in Bhurtpore is systematic, and is probably as good as in any of the Rajpootana States. The land revenue settlement appeared to be working satisfactorily. There were 38 new schools opened during the year and 23 closed; pupils in the city schools were certified as showing proficiency.

Dholepore. The finances of the Dholepore State were in a prosperous condition. The collection of land revenue amounted to 76,339*l.*, instead of 64,000*l.* as estimated. The working of the police and the administration of justice were creditable. The dispensaries were steadily increasing in popularity, and the number of vaccinations advanced from 4,903 to 6,919. The young Rana continued to make satisfactory progress with his education.

Ulwur. In Ulwur the faction which attempted in the previous year to contest the succession of Mungul Sing was extinguished by the death of Lukdeer Sing in September, his partizans having since gradually surrendered. The administration went on smoothly under the superintendence of Major Cadell.

The condition of the finances was satisfactory; the last of the debts were liquidated during the year. The departments of justice, public works, education, and vaccination were all well reported on.

Bickaneer. In Bickaneer the administration of justice was not satisfactory, though there was improvement. Crime is stated to be "chiefly looked upon as a source of revenue."

Serohi. Colonel Carnell, who temporarily administers the affairs of Serohi, is reported as possessing a thorough knowledge of the State and the people. His influence and energy enable him to render valuable services in maintaining order throughout a wild and lawless country. The young Rao is said to be alive to the necessity of improving the financial condition of the State, and it was hoped that the debt might be cleared off in five or six years. There was promise of better relations between the Chief and his thakoors owing to the amenability of the former. Vaccination was becoming more popular.

Central India States. The great event of the year in Central India was the visit of the Prince of Wales, who was received here, as in Rajpootana and other Native States, with great enthusiasm. Before his arrival the Governor-General's Agent consulted with one of the principal Chiefs as to the expediency of interdicting all presents to the Prince, owing to the great expense that would be involved in his making returns of commensurate value. The Chief in question, an astute, intelligent, and economical man, expressed his decided opinion as follows :—"This is an event without "precedent, don't attempt to shape it by anything which has gone before; for the first time "during your rule of India, India is to be visited by the Sovereign, for in the Shahzadah, the "Queen's heir, all will see their Sovereign. We, the Chiefs of India, owe it to ourselves to "receive the Shahzadah in a manner becoming to us. I could not meet His Royal Highness "without an offering, and I could not present a small offering. Advise Chiefs to present "something in their possession—heirlooms or curios. Leave the rest to us." Accordingly no one was content who had not an opportunity of offering some treasured possession.

The Maharajah of Gwalior said to the Prince: "There have been Sindias before me who "have won great honour, but no ancestor of mine has been so honoured as I am to-day."

Holkar's reception of His Royal Highness was likewise most cordial. His capital was illuminated, he devoted himself to the comfort of his guest, and made him costly offerings.

The Viceroy, in a tour which he took in Central India, was much gratified in observing the interest taken by the Native Princes without exception in the liberal education of the higher ranks, and in the sound and useful instruction of the lower classes of their subjects.

The Rajah of Dhar has recently constructed a new college. In the college at Rutlam, besides the usual courses of instruction in English, Persian, and Hindee, there are normal classes for the training of village schoolmasters. At Jowra the Nawab is himself a good English scholar, and takes a keen personal interest in the college there. At Indore a good collegiate school is attached to the Residency; the Maharajah is a patron of it, and his eldest son is completing his education there.

A most gratifying circumstance connected with all these institutions is the large number of young men of high rank who attend them. At Jowra the Mussulman nobles of the State are giving their sons a sound English education.

Gwalior. Maharajah Sindia went to Calcutta to be present at the reception of the Prince of Wales, and from thence proceeded to Delhi, where he took a lively interest in the operations at the Camp of Exercise. The Prince afterwards spent three days at Sindia's capital, where no expense was spared to do him honour.

Indore. The Maharajah of the Indore State holds the reins of Government in his own hands, and it is only in matters not affecting the revenue or the established customs of the State that the Minister has any control. Complaints are made of the over-assessment of the land and oppressive exactions from the ryots.

The revenue amounted to 459,800*l.*, against 500,000*l.* Of the deficiency, nearly 30,000*l.* was due to failure of collections under the head of land revenue, and the rest under customs; but in regard to both these items the State may be considered to have suffered to the advantage of its subjects. The disbursements were within the receipts by about 50,000*l.*, so that the financial condition was very satisfactory.

The cotton mills were very profitable to the State. The management (under Mr. Broome) was admirably conducted. The weight of cloth produced during the year was 394,488 lbs., while orders were received for 475,148 lbs. It was in contemplation to increase the number of spindles.

The dispensary was well attended, 11,373 persons having received aid from it.

There were 77 schools in the State, attended by 3,235 boys. The standard of education at the High School was good, and several of the pupils have from time to time passed the Bombay University Matriculation examination. A scheme for further extending education was under consideration.

Rewah. The Rewah State (*see* last Report, p. 84) was under British management. Matters worked smoothly during the year under the supervision of Major Bannerman, who evinced much tact, and whose measures gained the confidence and approval of both the people and the Chief, and resulted in great benefit to them. Criminal and civil courts were instituted, and worked well. The system of letting out the State revenue to three or four of the most powerful Sirdars, who had complete jurisdiction in the leased districts, was replaced by a temporary settlement for two years; and the management and collection of revenue were proceeding satisfactorily. Considering the lawlessness and confusion which had long prevailed, the work of re-organisation was at first a very difficult one.

Bombay States. The reports to Government by the several political officers as to the effect produced on the Native Chiefs by the visit of the Prince of Wales, and by his courteous and kind bearing towards them, are most satisfactory, and that not only in relation to the British Government, but in many cases also in their relations with one another.

Lieut.-Colonel Barton, Political Agent at Bhuj, then serving in the Rewa Kanta, says:—

"The Chiefs all expressed themselves much pleased with the reception accorded them, "and appreciated highly the honour of their interviews with the Heir-Apparent, and of "receiving mementos of his visit from His Royal Highness. Independently of the honour "thus conferred, there is no doubt that, although visits to the Presidency are attended with "considerable expense, they are productive of great benefit to the personal character of the "Chiefs concerned in them. For the time being these potentates are removed from the "narrow sphere in which they live and move and have their being; they find that they have "to mix with all classes of society, that there are many of equal and some of infinitely "superior rank to themselves; and in the daily meetings with their fellow-Chiefs they are "obliged for courtesy's sake to forego their petty jealousies and inherited animosities. This "effect has been notably apparent amongst the Rewa Kanta Chiefs. Ten years ago they all

" had divided interests, their land disputes had existed for ages, and ancestral feuds had " been transmitted through bygone generations. So great was the animosity thus aroused " that one Chief would not meet another, and this feeling was carefully fostered by those who " surrounded them.

" This phase has happily passed away. All points in dispute have been settled, family " feuds have been healed, and close friendships engendered in the healthy atmosphere of the " Rajkumar College. The royal visit has completed what there was wanting to the *entente* " *cordiale* between the Chiefs of this Agency. For the first time in its history all its sub- " ordinate rulers of territory extending over 4,000 square miles met in the saloons of his " Excellency the Governor. I was subsequently present at an evening party given by the " Rajah of Baria to his fellow-Chiefs and a small circle of English friends. Good humour " prevailed, the guests retired mutually pleased, and since then the most cordial feelings " have been maintained amongst them."

A further good effect produced is that some of the more powerful Chiefs have determined to commemorate the event by the erection of some public works of a permanent character. The Rao of Kutch, who died during the year, set apart the sum of 20,000*l.* for the construction of a breakwater and harbour works at Mandvi, which are to be named after the Prince. At Kolhapore a hospital is to be built, also bearing the Prince's name.

*Kutch.	Rewa Kanta :
Kattywar :	Baria.
Bhownuggur.	Sunth.
Gondal.	Lunawara.
Morvi.	And 12 small estates.
Limri.	Kolhapore (including minor estates) :
Wadwan.	Miraj, senior branch.
Wala.	Mudhol.
Jhinjhuwara.	Akulkote.
Mengni.	Juth.
Pahlunpore :	Sawunt Waree.
Tharad.	Narakote.
Mahee Kanta :	Peint.
Edur.	Surat :
And 17 talukas and villages.	Sachin.
	Bansda.

Of the Native States within the Bombay Presidency a large number* were during the year under the direct management of British officers ; including Baroda, the area of the States so managed aggregated 25,476 square miles, and the population 5,000,000. Kolhapore has been under a British Agent since 1866, owing to successive minorities, and Sawunt Waree has been under similar control since 1838. Narakote and Peint are under permanent supervision, and are rather non-regulation than independent territory.

In States under management the revenues were generally flourishing. Indeed the normal business of political officers has come to be to receive States deeply involved, and to return them to the young heirs free of debt, their revenue improved, their administration consolidated, and with usually a handsome cash balance invested in the Government securities. The condition of Bhownuggur is particularly satisfactory. The joint administrators have secured to this part of Kattywar a remarkable degree of prosperity, and by careful attention to the requirements of merchants have succeeded in attracting a large proportion of the whole trade of the province, though Bhownuggur is by no means most conveniently situated for a central port.

The northern States are wealthier in natural resources than the southern, but are socially less advanced. In the latter a settled state of society has been much longer in existence, but the soil is poor and exhausted, and the people are less interesting.

In the north, frontier disputes have greatly diminished of late years. There was only one disturbance of this nature during 1875–76. Two intestine disputes, accompanied with bloodshed, occurred, both originating in resistance on the part of the Girassias to lawful demands by the Durbar officials. The Jadeja Court, in Kutch, did a creditable amount of work during the year; 1,176 cases were decided, including 177 of long standing. This, and the Rajasthanik Court in Kattywar, are established for the purpose of settling disputes of the above nature. The business of the latter court is to survey and map the Girassia's landed estate, to fix his miscellaneous dues, and also to define his relation to his Chief by laying down on a reasonable principle the extent of his municipal and political obligations. The survey and settlement work of the court has proceeded in a way that is perfectly satisfactory, and by the unanimous wish of the States concerned it is to be continued for five years beyond the term originally sanctioned.

The work of the Rajkumar College was steadily carried on throughout the year, and, with two exceptions, the attendance of the boys was regular and their progress good. Their conduct also was reported on in the highest terms. They continued their mounted drill, and most of them were good riders; they also had regular instruction in gymnastics. A new stimulus was given to cricket by the institution of matches between the college and the Kattywar High School, which are likely to be of good service to both.

This college is supported by the Kattywar Chiefs, and is said to be rapidly gaining their confidence. The Bombay Government regard it as a reform pregnant with good to India

that those who are hereafter to have an important share in the business of government should be brought up apart from the enervating influences of the zenana and the degrading superstitions of its atmosphere.

The police statistics of the northern States showed little violent or serious crime. The institution of a federal police has had the desired effect; during the year there was no plundering by outlaws, no village was attacked, and the number of dacoities was considerably diminished.

This state of things is most creditable alike to the Agency and to the Chiefs, and Government have readily consented in consequence to the cessation of the employment of the special police under Captain Humfrey, feeling it far more satisfactory that the peace of the country should be maintained by the independent good administration of the States, in friendly co-operation with the Political Agency, than by the direct interference of Government.

The Chiefs have intimated their readiness to consider proposals which may make the maintenance of the federal police less burdensome to the States supporting it. Government have the more readily conceded these points, as guarantees for security of life and property have very much multiplied during recent years. Not only are regular bodies of police everywhere better drilled and remunerated, and in more general favour, but the Chiefs are more careful to avoid a reputation for sheltering criminals, and have less objection to furnishing returns; whilst village police are being almost universally introduced, and thus each village is being provided with officials responsible for the immediate prosecution of offenders. But, perhaps, the most effectual safeguard has been the concentration of the inferior powers of the lesser landlords in the hands of thanadars, or petty stipendiary magistrates, to whom have been allotted jurisdictional circles embracing all the territory not in the hands of Chiefs capable of exercising a vigorous control.

In the southern States the police are generally indifferent, but here too improvement is being effected. The statistics of crime showed little change as compared with the previous year, but, if anything, a tendency to increase.

A satisfactory feature in this part of the country is the extension of municipal government to many of the large towns, and to most towns water is being supplied. Miraj, with its wide roads, well lighted and lined with trees, its general conservancy, and its convenient water-supply and markets, is stated to be a conspicuous example of what constant attention on the part of a political officer may accomplish.

The financial condition of these southern States is generally sound. The expenditure on public works is very small where a political officer is not in charge. The only industry is agriculture, and the produce is seldom of sufficient value for export. Both vaccination and education made satisfactory progress during the year in all the States.

A most important work has been commenced by the formation of a private class for the wives of the Chiefs and Sirdars, in addition to the education provided for their daughters. Marriage occurs so early that practically girls can be taught little unless their education is continued after marriage. The young wives of the Chiefs of Mudhol and Baura were already fitting themselves for their position in this way.

Baroda.

Sir Madava Rao commenced his duties as Minister of the Baroda State on the 10th May 1875, and on the 27th of that month Syajee Rao was adopted by the Maharanee Jumnabai. The Minister has submitted an able report of the first year of his management.

Owing to the extreme state of confusion into which everything had fallen under the past *régime*, it was not possible, even with the greatest efforts, to close the accounts or to present any precise information as to revenue and expenditure.

The general results for the year are gratifying, but in one branch of the administration the Government of India have expressed their hope that speedy progress will be made, namely, in the adjustment of the large number of pending Girass cases, which have been a sore point in the annals of Baroda ever since 1864. The number of undecided cases was 2,354. The meaning of the term "Girass" is as follows. The portion of a village (usually one-fourth) which was left to the lords of the soil by the Mahomedan conquerors free of rent was called "Wanta," and the holder of the "Wanta" was named "Girassia." But there are Girassias of another kind who are very numerous, viz., men who in former times plundered the country and received a consideration in cash or land or kind from the villages as the price of protection and immunity from plunder,—in other words, blackmail.

The condition of the country at the close of the year was tranquil, and violent crimes were rare. The absence of complaints at the Residency appeared to point to the general contentment of the people.

A complete system for the administration of civil and criminal justice was in operation; the judges and magistrates were, generally speaking, men of experience and good character. Capital punishment, which from mistaken ideas of humanity, or from fear of responsibility, had been practically abolished, was revived. Sir Madava Rao had reason to believe that

under the former system murders had decidedly increased. It was notified that women and Brahmins, who had heretofore been regarded as absolutely exempt from execution, would not in future enjoy any such immunity.

The report shows that the Minister attaches great value to public improvements of all kinds. The capital has been considerably improved, and efforts have been made to keep it clean, but it is still in a bad state and requires a proper drainage and good water-supply. There was a violent outbreak of cholera during the hot season of 1875.

The young Maharajah was making excellent progress in his studies, and due attention was given to physical development and sports. So far the Governor-General's Agent regarded him with the greatest hopefulness.

Education, generally, was receiving due consideration at the hands of the Minister. The number of schools supported by the State was added to; and a ready consent was given to a suggestion that a school should be provided for the children of Europeans and Eurasians resident at Baroda who are not able to send them to Bombay.

A scheme for affording medical aid throughout the State was determined on, and awaited the arrival of an English doctor to bring it into practical shape. There has already been for some years a very fair dispensary in the city of Baroda. A charitable custom prevails in this city of daily distributing food at the cost of the State to about 7,000 Hindoos and 3,000 Mahomedans; great abuses have naturally grown up under this system, but reform will have to be very cautious and gradual.

Kutch.

The year was marked in Kutch by the death, on the 1st January 1876, of the Rao, who was a vigorous and enlightened ruler. He was succeeded by his eldest son, a promising boy of 10. There was an apparent increase during the year of petty crime in this State, but this was chiefly due to increased facilities for detection and punishment. No cases of dacoity or border fights, or of infanticide, were reported. The late Rao recognised his obligations in regard to measures of sanitation, to which increased attention is stated to be given year by year. In the finances of the State there was a deficit of 11,317*l.* The revenue was less than that of the previous year by nearly 8,000*l.*, consequent, it is said, on failure of rain. Expenditure on public works amounted to 22,683*l.*, of which 15,817*l.* was for the new palace. The latter expenditure having now ceased, money will be set free for more necessary works. Education did not progress very rapidly, but the quality of the work done is said to have improved. The field survey, commenced in 1873, made progress; this survey will not at present be followed by a revenue settlement, but it will be valuable as a record of rights and measurements.

Imports into Kutch very largely exceed the exports. The intended improvement of the harbour (already referred to, p. 69) will, no doubt, do much for the development of trade. Besides its local coasting trade, the port has trade connexions with Muscat and other places in the Persian Gulf, Kurrachee, Aden, Zanzibar and the African Coast, Bombay and ports on the Malabar Coast, and even with Calcutta. It receives grain, groceries, oilman's stores, cloth, paper, ivory, iron, brass, and copper wares, in exchange for cotton, wool, alum, ghee, garlic, and coarse cloth exported.

Kattywar.

Some points in regard to Kattywar have already been mentioned. The Chiefs have combined for the construction of metalled and bridged trunk roads leading to the railway and seaport towns. At the close of the year 22 miles of road were completed and opened for traffic, 13 more were metalled and bridged, and 5 miles were partly constructed. Another important work was the construction of a lighthouse at Verawal by the Nawab, with a lantern containing a fixed dioptric lens, visible at a distance of about 20 miles. The south-west coast is thus effectively lighted for the steamboat traffic with Bombay, Kutch, and Kurrachee. The cotton industry was in a very promising condition.

The staple productions of Kattywar are cotton, wheat and common food grains, and wool, which are all exported. The wool is from the northern and western districts. The cotton is mostly exported from the north and east by the railway, and by the ports of the Bhownuggur group. The trade returns from Bhownuggur show a trade from that port with 62, and from Mahuwa with 49 ports, which are all within the limits of India, except Bussora and Bunder Abbas. The great bulk of the trade is with the port of Bombay, Surat coming next, and Bulsar third. Rice, gram, and dates are imported from Sind, and cocoanuts from the Madras ports. There is a large import of rice also at Verawal, for the food of the higher classes.

The statistics of trade show that the exports of Kattywar greatly exceed the imports in value, and a large amount of coin is annually imported. In 1875–76 an addition of 31 lacs of rupees was made to the currency through the Bhownuggur ports alone. The export trade is expanding with improved roads and harbours.

Education made good progress. The local committees provided additional funds, and accepted the Government system of annual budgets and of paying masters by results. The

increase of schools was 19, and of pupils 2,763; the total number of the former being 417, and of the latter 23,266. There was an advance in the number of persons vaccinated from 77,700 to 80,857. The Chiefs are stated to show a remarkable readiness to afford their subjects medical relief. They voted 150*l.* towards the expenses of Dr. H. V. Carter when investigating the subject of leprosy in their country.

Pahlunpore. The amount of crime in the Pahlunpore Superintendency was very small, consisting principally of cattle-stealing and petty thefts and robberies. A village police system was being carefully organised. Information regarding trade is scanty; the principal articles of import were piece-goods and molasses; and of export, grain. There was an increase of 789 in the number of vaccinations. The schools numbered 20, having increased by one, and the attendance also improved.

Mahee Kanta. In Mahee Kanta vaccination showed about the same advance as in Pahlunpore, and the attendance at the 45 schools somewhat increased. The statistics of crime were rather more favourable than in the preceding year, but complaint is again made of the number of cases of assault and theft arising from the drinking propensities of the Bheels and Kolis. These people first steal to get the liquor, and then become quarrelsome. The number of liquor shops was, however, reduced from 490 to 277 during the year, and other stringent measures with regard to the sale of liquor have been taken. Though crime was less, the number of deaths by violence was greater by 10.

Rewa Kanta. In Rewa Kanta also crime diminished, the decrease being most marked in murder, robbery, housebreaking, and theft. This is attributed to the fall in the price of grain consequent on very favourable seasons. A stimulus was given to education by the introduction of the budget system, and the increase by the Chiefs of their grants for this object. The number and attendance of scholars on the whole largely increased. Under vaccination there appeared a falling off. An outbreak of cholera was the occasion of demonstrating the advance that had been made in the civilisation of the people. In former epidemics poor old women had been cruelly tortured, in the belief that they were the cause of the evil and were feasting on the livers of those who died. Nothing of the sort occurred on the recent occasion, and only such superstitious ceremonies were resorted to as pouring milk round a town or encircling it with a cotton thread.

Trade revived during the year; the returns of all the northern States showed a large increase in articles both of export and of import. The former are principally composed of grain, mhowra, timber, oil, and ghee; the latter of piece-goods, salt, tobacco, and groceries. The improvement in roads and water-supply, which has been going on for some years past, and the security engendered by a better police system, have tended to increase the trade between Guzerat and Malwa.

Of the whole area 35 per cent. was under direct management. The Baria State was in a flourishing condition; and it will be made over in due time to the young Rajah with all the debts cleared off, the water-supply and means of communication greatly improved, the land revenue increased by about 25 per cent., an organised system of police, and well-defined boundaries.

It has been the custom from time immemorial for the Chiefs of Lunawara, who are of the purest Rajpoot blood, to take their brides from certain clans in Meywar and Marwar, which clans decline to give any dowry with their daughters. Nothing will induce the Chiefs to take their wives from any other source; and consequently, although this State was in a very impoverished condition, a further expenditure of at least 4,000*l.* was about to be incurred in the marriage of the young Rajah. He was, during the year under report, at the Rajkumar College; notwithstanding the cost of his education the counterbalancing advantages were so great that it was considered that nothing but the direst financial necessity could justify his removal.

Sachin. Of Sachin (in the Surat Agency) it is reported that the survey was completed, vaccination made fair progress, and there was an entire absence of serious crime.

Junjeera. In Junjeera the year was characterised by the almost entire absence of crimes of a serious nature. The civil courts were placed on a satisfactory footing, and were much resorted to. The stimulus given in the previous year to education by the establishment of superior schools was followed up by continued energy in the year under report.

Sattara. There was very little to report in regard to the petty State of Akulkote and the several jaghires under the control of the Political Agent of Sattara. Something was done towards securing better accommodation for prisoners, and also for the improvement of communications. Education made some, but very slow, progress; although not of a high order, it was stated to be sufficient for the wants of the people. The most important, however, of all the measures of the year was the decision to introduce a survey and settlement into the Bhor

territory; this will be a very great boon to the people, as it will do away with many obnoxious imposts and other grievances under which they now suffer. The survey is to be conducted by officers of Government, and is in substitution of one that had been undertaken by the Chief, but was found to be untrustworthy. The management of the Bhor State was unfavourably reported on, particularly the administration of criminal justice. The affairs of the Juth State were well and ably managed by the Assistant Political Agent. Many reforms were introduced, the most important of which was the balancing of the accounts.

Kolhapore.

The number of offences in Kolhapore was about the same as in the previous year, but there was an increase in the more serious crimes. The total receipts of the State amounted to nearly 310,000*l.*, and the expenditure to 290,000*l.* On public works nearly 40,000*l.* was expended. The municipal income of the capital amounted, including surplus funds in hand, to 5,834*l.* The improvement of the town was in progress, but much still remained to be done. The construction of a general drainage and of a new market were under consideration.

Irrigation works were in contemplation; roads were being opened up towards Pandharpur and the grain-producing districts eastward, while a route for produce to the coast was being led over the ghâts.

Cotton, tobacco, and sugar-cane form together about 7 per cent. of the total cultivation of Kolhapore, and contribute largely to its wealth; but jowari and rice are the staple products.

There was an increase of over 2,000 in the number of vaccinations. The schools were reported to be efficient, but there was one less in number, and the attendance had also somewhat diminished.

Sawunt Waree.

The general results of the administration of the Sawunt Waree State appear to have been of a satisfactory character. Except in the offence of salt-smuggling, the criminal returns contrasted favourably with those of the preceding year. A decided improvement was reported in the popular feeling with regard to education. The attendance increased, and was more regular, and six new schools were opened, partially supported by the State.

Southern Mahratta States.

The reports of the Southern Mahratta Jaghires show a steady progress in all branches of administration. The results in the Sangli State were highly satisfactory; the inefficiency and bad behaviour of the Chief were made up for by the intelligent and efficient services of the minister. A municipality, which had existed nominally for some years past, was put on a proper footing, and it was anticipated that the income would amount to about 1,000*l.* a year. Another jaghire highly spoken of was Mudhol.

The finances of most of the States were in a prosperous condition, and a fair share of the revenues was devoted to useful public works. Criminal justice was well administered, and there was a general absence of serious crime. In Sangli there was a decrease in the more serious crimes, but a marked increase in offences against person and property. Seven new schools were opened in Sangli, and five in the other jaghires. In vaccination also there was, on the whole, considerable progress.

Mysore.

The aggregate income of municipalities in Mysore was 37,552*l.*, against 36,487*l.** in the previous year. The receipts from octroi amounted to 15,557*l.*

There was a decrease of crime generally. Dacoities, however, again rose, namely, from 39 to 41, and there was a slight increase in the number of murders and of robberies. More than half of the latter occurred in the Nagar Division. The number of juvenile convicts fell from 159 to 71, and that of prisoners above 60 years of age from 209 to 89.

There was some improvement in the working of the police, as shown by the per-centage of convictions to arrests, but they exhibited considerable deficiency in detective ability. A great improvement appeared in the number of men punished during the year. There were at the close of the year 745 officers and 1,319 men able to read and write, against 520 and 1,186 in 1874.

Of prisoners received into jail during the year, 13·5 per cent. were able to read and write, while among those who were discharged the proportion was 19 per cent. Of those released after more than six months' imprisonment the proportion who had received instruction was 64·2 per cent., a very satisfactory rise upon the ratio of 38 per cent. in 1874.

The amount of civil litigation increased, as it had done steadily for several years past. The average value of the suits was 10*l.* 6*s.* Nearly three-fourths of the total number were uncontested.

In the demand on account of land revenue there was an increase of 2,696*l.*

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* The amount was stated in last year's Report (p. 89) as 52,285*l.*, but that included the opening cash balance. The proportion derived from octroi (15,792*l.*) referred only to the income of the year.

The rainfall amounted to only one-half of that of the previous year, and about two-thirds of the average of the past five years, and the evil was aggravated by the fall being in many places unseasonable. The scanty rainfall raised the price of food-grains in some parts, and caused distress among the poorer classes.

In the State forests 1,057 additional acres were planted during the year; 50 acres were added to the teak plantations, 93 to timber, 46 to sandal wood, and 868 to fuel plantations.

With regard to irrigation, the expenditure on original works continued steadily to increase, and amounted in 1875–76 to 34,106*l.*

The total number of deaths from all causes in Mysore was much the same as in the previous year. The deaths from cholera rose from 2 to 3,139. On the other hand, small-pox, which in 1873 and 1874 respectively had numbered 3,052 and 1,535 victims, showed a further marked decrease in 1875, when the casualties amounted to 544 only.

Some important measures were introduced in connexion with education; amongst others, the constitution of a Central College and the affiliation to it of collegiate schools in each division. The School of Engineering and Natural Science was noticed in the last Report (p. 90).

The outbreak of cholera was a great check to education. Many masters died, and also students at normal schools, which were deserted in a panic. Several large schools had to be closed for a time, until public alarm was allayed. Notwithstanding these drawbacks, however, there was an increase of 31 Government and 5 aided schools, while the total number of pupils advanced from 31,577 to 36,309, or at the rate of 15 per cent.

At the higher schools an increased rate of fees was adopted without being followed by any falling off in the attendance.

The unaided schools also increased by 14, but the number of scholars slightly diminished. It is computed that the proportion of the population under instruction is 1 in 93.

With the object of encouraging the building of suitable premises in villages for primary schools, inducements are held out by Government in the way of sharing the expense of timber and providing school furniture, and in consequence many buildings have been erected either by some wealthy man at his own expense, or by subscriptions among the inhabitants.

Cochin.

In Cochin the land revenue amounted to 61,572*l.*, which was slightly less than in the previous year. With the exception of some land lying in the bed of the Trichoor Lake, the assessments are virtually permanent. The salt revenue declined, as it had done in the year before; the reason for this has not been ascertained. The returns indicate that the consumption has greatly fallen off, probably in consequence of the increased price.

The progress of education is said to be very satisfactory. A First Arts class was established in the High School, and the teaching staff was strengthened.

A new dispensary was opened in Trichoor in a commodious building.

The public works department was also efficiently conducted. The Cochin Government always readily undertakes its share of any joint works proposed by the British authorities.

A census which was carried out in Cochin during the year gave the population at 601,114, against 399,056 returned 17 years previously. The proportion of Christians was greater by 3 per cent. than in Travancore; they almost monopolise the boating and fishing industry. The density of the population was shown to be 441 to the square mile. The chief support of the people is the coco palm, which grows luxuriantly on the seashore and backwaters.

Travancore.

The revenue of the Travancore State during the year ending 15th August 1875 amounted to 553,164*l.*, the highest figure ever reached, and larger than that of the preceding year by 18,551*l.* The amount of the land revenue was 169,777*l.* There was a great demand for coffee land, and the average price per acre rose from a nominal rate to Rs. 28. Under customs revenue there was an increase, notwithstanding the abolition of the export duty on coffee. The latter measure was balanced by an increase in the land-tax on coffee lands. The salt revenue showed a very considerable increase, owing partly to the raising of the price and partly to increased consumption. Cardamoms are a very profitable source of revenue, the amount of which, however, fluctuates very much with the seasons; it ranged during 10 years from 6,000*l.* to 40,000*l.*, and in the year under report it amounted to 17,290*l.*

The expenditure on education in this State is very liberal. There was a small increase in the number of pupils at the Trevandrum College and High School, and the results in the higher grades of the University examinations were very satisfactory. Female education receives a good degree of attention both from the Maharajah and from missionaries. The former maintains a girls' school, in which the instruction is in English, and which numbers 66 pupils, and is reported as very efficient. In addition to several other mission schools, one in the Fort of Trevandrum, which is largely aided by the Maharajah, supplies an excellent education to a large number of high-caste girls.

The Maharajah's hospital at Trevandrum is stated to be an admirably managed institution, and is much resorted to by high-caste patients. Another useful institution in the same town is the Charity Hospital, which is also partly used as an almshouse.

In this State, too, a census was taken, the population being returned at 2,311,379, as compared with 1,262,647 and 906,587, which were the results of enumerations in 1854 and 1816 respectively. Upwards of 20 per cent. of the population were found to be Christians, whereas in the British portion of the Madras Presidency the proportion is 1½ per cent. The majority were Syrian Christians (295,770); next came Roman Catholics (109,820); then Protestants (61,284).

XIV.

FRONTIER RELATIONS.

FRONTIER RELATIONS.

North-East Frontier.

Beyond the Northern Arakan frontier the usual condition of violence and dissension prevailed; the raids were more numerous, and in some cases more serious, than those of the preceding year. Nine cases were reported of rapine and bloodshed, in which 21 lives were lost and 177 captives were taken. It has not been the policy of Government to interfere with the non-tributary tribes beyond our administration, except in so far as anything can be effected by friendly intercourse and admonition. The Chief Commissioner notices with regret that the visits of the border Chiefs appear to be getting less frequent, and to be made yearly by the same men. The Mros seem the worst of the marauders. On the 16th of November they attacked two villages within our own jurisdiction. Seven women and five children were carried off and one man was speared to death. Retaliatory violence was thought unadvisable, but efforts were made to recover the captives. It was alleged as an excuse by one of the principal Chiefs concerned that the plundered villages had only recently come under our protection, and that the raiders were ignorant of the fact, and he was profuse in promises of better behaviour in future; in the preceding year, however, a similar raid occurred on the same villages because it was known that they were about to remove within our frontier.

This foray is the first which has occurred during the past three years, and a change of police station has been made to ensure the villagers in this quarter against any future aggression.

In striking contrast to the state of things beyond was the peace and goodwill that prevailed within our borders. Improvement was observed in all directions. One of the most satisfactory features was the successful working of the Civil Dispensary, where there was an increase of attendance from 404 to 1,441. The hill tribes, it is stated, have learned to confide in our system of medical treatment, and form by far the largest portion of the patients.

One whole tribe (the Chaws), and whole villages of other tribes, placed themselves within our administrative boundary during the year. Amongst the latter were several villages of the Khoons, together with the Chief of that tribe. In former years the Khoons were quite as troublesome as the Shindoos, in whose raids they almost invariably joined.

In the Munnipore report for 1875–76 an account is given of four raids by Angami Nagas on that territory, in which 106 persons were killed, houses were sacked and fired, and a large amount of property was carried off. In one case the attacking party was more than 1,000 in number, and had 80 or 90 muskets with them. It is a question whether some retributory action may not have to be taken.

North-West Frontier.

The Punjab frontier from Hazara to Sind was, with one exception, peaceable and orderly throughout the year, and more so than in any other year since the annexation of the province That exception was on the Kohat border, where the refusal of some sections of the Afreedee tribe to consent to the repair of the military road through the Kohat Pass led to the blockade of the whole of the Pass Afreedees. One important section subsequently submitted.

The differences with the Akazai tribe, mentioned in the last Report (p. 93), were satisfactorily settled, and some of the tribe subsequently took service in the Punjab police. Friendly relations were also entered into with other tribes.

Arrangements made in the previous year for securing the better administration of the Tonk Valley, which had long been notorious for border crime, worked satisfactorily. The independent tribes are now encouraged to address the British authorities direct in all matters affecting their interests, and the outrages which formerly were of constant occurrence have now completely ceased.

India Office,
30th July 1877.

HENRY HILL.

ROYAL ASIATIC SOCIETY LIBRARY

STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION

OF

INDIA

DURING THE YEAR 1876-7.

LIBRARY OF THE BOMBAY BRANCH OF THE ROYAL ASIATIC SOCIETY

(PRESENTED PURSUANT TO ACT OF PARLIAMENT.)

Ordered, by The House of Commons, *to be Printed*,
14 *August* 1878.

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STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION OF INDIA

DURING THE YEAR 1876-7.*

I.

ADMINISTRATION AND LEGISLATION.

ADMINISTRATION.

LORD LYTTON took his seat as Viceroy and Governor General of India on 12 April 1876. On 28 April 1876 the Queen assumed the title of "Empress of India," as a formal recognition of the position of the British power in India since the transfer of the Government from the East India Company to the Crown, as well as to mark her appreciation of the loyalty and affection continually displayed by the princes, chiefs, and people towards her throne and person, and more particularly manifested during the visit of the Prince of Wales. To proclaim this event to the 240 millions of inhabitants of India in a manner befitting the august occasion and satisfying to native sentiment and sympathies, the Viceroy held on 1 January 1877 an Imperial Assemblage at Delhi, the ancient capital of the Mogul Empire, inviting thither the heads of the administration of the Presidencies and Provinces, and the princes, chiefs, nobles, and other leaders of the people. The ceremonies were conducted with all possible splendour. Imperial banners were presented to the principal native princes and chiefs; titles and decorations were conferred on several eminent personages; and 20 "Counsellors of the Empress" were appointed. In order that everything might be done to enhance the political effect of the occasion, the Queen's Proclamation of the assumption of the Imperial title was read in public Durbars, held on the same day, with appropriate rejoicings, by the chief civil officers of Government, at the head-quarters station of every division and district throughout India. Those ruling chiefs who, though invited, were unable to proceed to Delhi, were requested to convene durbars in their own territories on the same day. At every military station a full-dress parade was held of all the troops, and a day's pay was issued to each non-commissioned officer and soldier, British and Native. Certain boons as regards pay and allowances were conferred on the native armies in India. As an act of clemency and grace, a certain proportion of the well-conducted convicts in the jails were released, and partial remissions of sentence were granted to other prisoners; the total number of prisoners liberated throughout India amounted to about 16,000 persons. On 18 October 1876, a Royal Warrant was issued, regulating the precedence of members of the various Indian services.

Bengal.

Sir Richard Temple was in January 1877 appointed Famine Delegate to the Madras and Bombay Presidencies, and was succeeded in the Lieutenant

* The preparation of this Statement has been unavoidably delayed owing to the unusually late receipt from India of several of the Administration Reports, especially those of Assam, British Burma, Mysore, and Madras.

ADMINISTRATION. Governorship of Bengal by Mr. Ashley Eden, with effect from 1 May 1877. The details of the scheme for the separation of the Civil Service in the Lower Provinces into two distinct branches, the executive and the judicial, have been settled. Every covenanted civilian will be called upon, between the tenth and the twelfth year of his service, to elect the branch of the service to which he desires to be attached. Orders on his choice will be passed by the local Government, to whom is reserved a power of decision. When an officer has once been placed on the list of one branch of the service, he will not be transferred to the other branch without the previous sanction of the Governor General in Council. In order to do away with the stagnation in the promotion of members of the Covenanted Civil Service, the Secretary of State sanctioned early in 1877 the extension to the Lower Provinces of Bengal of the concessions as to proportionate pensions and personal allowances granted in 1876 to civilians of the North-Western Provinces.

Assam. Assam was administered during 1876-7 by the Chief Commissioner, Colonel R. J. H. Keatinge.

N. W. Provinces. Sir John Strachey was Lieutenant Governor of the North-Western Provinces during the early part of 1876-7; Sir George Couper officiated from 25 August 1876 to 17 January 1877, when he was confirmed in the appointment, and on 15 February 1877 he took over charge of the united provinces of the North-West and Oudh. The administration of Oudh was amalgamated with that of the North-Western Provinces in January 1877 on grounds of general and financial policy. The seat of the chief executive authority in Oudh was transferred to Allahabad; but the Lieutenant Governor and Chief Commissioner will reside for a portion of every year at Lucknow. The administrative changes affected Oudh chiefly; but existing arrangements were disturbed as little as possible. In September 1876 final orders were issued on the report of a Committee appointed in 1875 to consider the question of improving the civil administration. The objects aimed at were the extension of authority in matters concerning which local officers are most competent to decide, and the constitution of magistrates and collectors in their districts, and commissioners in their divisions, as the direct representatives of Government in all its branches. The exigencies of the financial situation, arising mainly from the depreciation in the value of silver, made it necessary to enforce strict economy in expenditure of public money. In the North-Western Provinces savings to the amount of over 30,000 *l.* were effected, chiefly in the police, education, vaccination, and dispensary departments. The long-agitated question of the position and prospects of the junior members of the covenanted civil service in the North-Western Provinces was settled by the Secretary of State, and a scheme of proportionate pensions and of guaranteed minimum allowances was approved. The churches and cemeteries of the North-Western Provinces were collated and classified, and a fixed establishment was provided on a sanctioned scale.

Oudh. Oudh ceased to exist as a separate administration in January 1877, when it was annexed to the North-Western Provinces, and in February Sir George Couper assumed the government of the united provinces. The Oudh Revenue Department is to be conducted, as heretofore, under the control of the Chief Commissioner, and in the judicial arrangements there has been no change; but the Departments of Public Works, Registration, Police, Education, and Jails, have been amalgamated with those of the North-Western Provinces.

Punjab. Sir Henry Davies, the Lieutenant Governor of the Punjab, was succeeded by Mr. R. E. Egerton on 2 April 1877. The part which the Punjab Government had to perform in the duties connected with the Imperial Assemblage at Delhi on 1 January 1877, on the occasion of the assumption by Her Majesty of the title of Empress of India, was onerous and important, the city of Delhi lying within its territorial jurisdiction, and the Punjab officers conducted most of the admirable arrangements for the supply of the vast multitudes assembled, for the preservation of order, and the prevention of epidemic disease. The only Punjab Chiefs absent were the Máhárája of Patiála, an infant, and the Raja of Kapurthala, who was ill, and has since died. The Lieutenant Governor considers the effect of the Assemblage to have been excellent and likely to be lasting.

Ajmere. The Ajmere and Mhairwarra Districts were administered during 1876-7 by the Commissioner, Mr. Leslie S. Saunders. A Government entertainment for all comers on the day of the Proclamation of the Imperial title was much appreciated, the town of Ajmere being crowded with visitors from a distance, all dressed in gala clothes.

ADMINISTRATION.

Central Provinces.

The administration of the Central Provinces in 1876-7 was conducted by Mr. John Henry Morris, C.S.I., the Chief Commissioner, and no changes occurred during the year.

Berar.

Colonel Sir Richard John Meade, K.C.S.I., conducted the administration of the Hyderabad Assigned Districts during 1876-7, the close of which year witnessed the retirement of the Commissioner, the Judicial Commissioner, and the Inspector General of Police.

Mysore.

Mr. C. B. Saunders, C.B., became Chief Commissioner of Mysore on 5 June 1876.

British Burma.

Mr. A. Rivers Thompson was, on 1 May 1877, confirmed in the appointment of Chief Commissioner of British Burma, in succession to Mr. Ashley Eden.

Madras.

The Duke of Buckingham and Chandos continued during 1876-7 to occupy the office of Governor of Madras, and was, on 1 January 1877 appointed a Counsellor of the Empress, in commemoration of Her Majesty's assumption of the Imperial title. At several stations in this Presidency the popular manifestations in honour of the Imperial Proclamation took the form of feeding and clothing the distressed poor, who, owing to the famine, flocked in large numbers to the principal town of each district.

Bombay.

At the close of his term of office the late Governor of Bombay, Sir Philip Wodehouse, was on 1 May 1877 succeeded by Sir Richard Temple. The block of promotion in the Bombay Civil Service induced the Government to make in 1876 certain proposals to the Government of India, and the Secretary of State, in a Despatch of 14 June 1877, extended to the Bombay establishment the concessions as to proportionate pension and personal allowances recently granted to the Civil Service of the North-Western Provinces.

MUNICIPALITIES.

Bengal.

The first meeting of the new municipal corporation of Calcutta was held on 23 October 1876. The revenue collected in 1876 was 254,322 *l.*, or 3,254 *l.* more than in 1875, while the ordinary expenditure was 258,260 *l.*, shewing a nominal decrease of 47,816 *l.*, caused by the payments made in December 1875 of the salaries for January 1876. The quality of the filtered water supplied to the town was excellent, and the daily average number of gallons was 6,541,154, an increase of 335,612. During the year the town underwent a careful sanitary examination by the health officer; and a census of the inhabitants was taken on 6 April. The population of the town, the fort, and the port, amounted to 429,535, of whom 282,506 were males and 147,029 females. The great mass of the male population is composed of migratory labourers and artisans, who visit Calcutta for a time and return to their homes periodically. They generally also go back to their native places when they are attacked by any but immediately prostrating sickness. Except, therefore, from acute diseases, such as cholera, only a small proportion of males actually die in the town. But for this fact the death-rate of Calcutta would be higher than it apparently is; the health officer places the true native death rate at 50 per 1,000. Including the Calcutta suburban municipality, the number of municipalities of the several grades in the interior of Bengal was 193, of which 24 were of the first class. Their gross income was 188,957 *l.*, and the expenditure 185,644 *l.* Taxation of houses, lands, and property was the main source of income. The attendance of Commissioners at the meetings of the committees was regular, and many shewed an interest in the affairs of their respective municipalities.

Assam.

More willingness than in former years was shown in 1876-7 by the Committees of the 4 municipalities in Assam to spend their income within the period of its accrual on measures immediately necessary, such as conservancy and roads, and not to hoard savings for the execution of large works. No public work of any magnitude was carried out, but many improvements of a minor character were accomplished, and signs of progress were by no means wanting. The total receipts amounted to 5,661 *l.*, and the expenditure to 5,874 *l.* Taking the population within municipal limits at 38,128, the incidence of income per head was 3 *s.*

N. W. Provinces.

In the North-Western Provinces the number of municipalities decreased from 81 in 1875-6 to 80 in 1876-7, owing to the withdrawal of the provisions of the Act from Jaswantnagar, where octroi taxation was out of proportion to local consumption. A tax on property was substituted for octroi duties in two other towns, where the through trade could not be protected. The committees

MUNICIPALITIES. were generally active in works of local improvement; while the total income from all sources during 1876-7 slightly fell from 231,753 *l.* to 231,225 *l.*, the expenditure rose from 201,493 *l.* to 204,792 *l.*

Oudh. There were 24 municipalities in Oudh during 1876-7; their income rose from 41,321 *l.* to 46,344 *l.*, and expenditure from 41,434 *l.* to 42,392 *l.* Octroi formed the principal source of municipal income. Most of the municipalities are very poor. The committees were instructed to correct their bye-laws, and draw them up more in uniformity with the present law. Lucknow, by far the most important municipality, has repaid the Government loan for municipal improvements; but so much has to be done in drainage and conservancy that it will be long before much can be spent in such luxuries as watered roads and lighted streets. It is evident that the privilege of electing their municipal members is not appreciated by the people. Even in Lucknow, after 13 years' existence as a municipality, no one was elected, and Government was forced to nominate the members of the municipal committees.

Punjab. All the 199 municipalities in the Punjab are constituted under Act IV. of 1873. At the end of 1876-7 there were 8 first class, 20 second class, and 171 third class municipalities. Of the total there were 197 with income derived either wholly or partially from octroi. The gross municipal income advanced from 203,045 *l.* to 217,147 *l.*, and the outlay from 210,217 *l.* to 212,445 *l.* The incidence of taxation was generally satisfactory; the average rate for the province was 14½ annas a head, against 14 annas in 1875-6. A project for water-works for the city of Lahore was recently sanctioned. No complaints have been made to the Government against the octroi, which appears not to be a burden on through trade. The octroi is levied according to the system adopted in the North-Western Provinces. Under this system an estimate of the town consumption of commodities having been made, the octroi calculated on it is levied on all articles of a taxable character imported into the town at a lower rate, sufficient to yield the same sum as would be realised if levied only on articles actually consumed in the town. The highest rates of incidence of taxation are mostly in the wealthiest towns. Some places have adjacent military cantonments, the residents of which are purchasers of the taxed commodities, but not members of the municipal population. To many places also come numerous purchasers from neighbouring villages beyond municipal limits; and the annual fairs and the visits of pilgrims and of nomadic tribes (as the Gaddis in Kángra and the Powindahs in the Deraját) frequently bring in a considerable floating population of consumers, not included in the population on which the incidence of taxation is calculated. Most of the municipalities have recovered from the temporary derangement of their finances arising from the orders issued by Government in 1875-6 for the exemption from taxation of raw materials used in manufactures.

Central Provinces. In the Central Provinces the Native non-official elected members take a growing interest in municipal affairs, and in some towns look after the roads, buildings, and conservancy, and take a direct share in controlling the octroi collections. It is found that, when encouraged to speak freely, the suggestions of the Native members are invariably deserving of attention, as they can be trusted as representing the wants of the people, and the importance of encouraging them in these duties has been impressed on the district officers. There were 57 municipalities, 40 of which derived their funds from octroi; and in large towns it is said that any other form of tax would create discontent.

British Burma. The year 1876-7 witnessed a satisfactory progress in the administration of municipal affairs in British Burma. Much useful work was done, and the local committees displayed no lack of zeal and interest. The total income of the seven towns to which the Municipal Act had been extended was 128,314 *l.*, and the expenditure was 115,779 *l.* In Rangoon, where taxation was highest, the improvement of the town was progressing more rapidly than elsewhere.

Ajmere. The municipalities of Ajmere and Beáwar worked satisfactorily, and the Committees looked well after the municipal interests. Ajmere had during the year an income of 7,874 *l.*, of which about six-sevenths was spent. An increase in the octroi receipts was due principally to the opening of the Rajputana State Railway to Ajmere on 1 August 1875, and partly to greater efficiency in the collection of the taxes. Beáwar had an income of 1,879 *l.*, and spent nearly all of it. The income of both towns is chiefly derived from octroi on certain articles of luxury. The octroi duties are under revision in order to

adjust their incidence more nearly to the actual consumption of the towns. Conservancy and police are fairly looked after in both cities. The water supply of Beáwar is now in a fair state, but a supply of drinking water for the city of Ajmere is still much wanted. MUNICIPALITIES.

In Berar during 1876-7 the action of the 5 municipalities of Amraoti, Akola, Khamgaon, Ellichpur, and Basim was satisfactory, though hampered by a falling off of revenue from 7,952 *l.* to 6,637 *l.*, caused by the reduction of the tax on trades and professions from 2 to 1 per cent., and exemption of incomes under 20 *l.* a year. The municipal committees were not backward, so far as the means at their disposal would admit, in carrying out works of improvement in the towns. Berar.

Another municipality was constituted in Mysore during 1876-7, bringing the total number to 78. Their income was 36,511 *l.*, and the expenditure 40,605 *l.* A decrease occurred in the octroi revenue owing to smaller quantities of dutiable articles having been brought into towns than in 1875-6, and a decrease under house tax was due to the extension of instalments granted on account of the famine. Mysore.

During 1876-7 the right of collection of the octroi duties in the two principal municipal townships of Coorg was leased out. An extension of the taxation system has since been granted to the minor municipalites, with a view of improving their position. Coorg.

The total revenue of the Madras municipality was 59,893 *l.* in 1875-6, and 59,218 *l.* in 1876-7. The scarcity of water caused the municipal authorities and Government much anxiety; and in February 1877 the Government found it necessary to make an advance to the municipality to enable them to repair and cleanse all public and private wells, and to sink new ones wherever required. No progress was made in the matter of town drainage, owing to the more pressing needs caused by the famine. The incidence of taxation rose from *Rs.* 1. 3. 4. to *Rs.* 1. 3. 10. per head of the population. A Bill for consolidating and amending the Municipal Acts, and providing an efficient system of drainage, occupied much attention of the Council. Several petitions from the inhabitants of Madras protesting against provisions of the Bill were presented. Madras.

In the Mofussil the number of municipalities continued to be 47, the aggregate income of which shewed a decrease of nearly 10,000 *l.*, chiefly owing to a redistribution between Local Fund Boards and Municipalities of the receipts from tolls on through traffic. The decrease of revenue was really small considering the distress prevailing in several districts. The improvement of the supply of drinking water claimed the attention of several municipalities, notably Ootacamund, Tanjore, Negapatam, and Trichinopoly. In the last-mentioned town the work was completed of filling in the moat which surrounded the great rock. There was a slight increase in the expenditure on education; and the Commissioners generally were unquestionably taking an increasing interest in their municipal duties. The policy of Government in developing local self-government in towns is gradually finding a response in the feelings of the people.

The rateable valuation of house property of the Bombay municipality continued to decline, the diminution being 50,140 *l.* during 1876, against which must be set the new or increased valuations amounting to 22,204 *l.* The gross valuation now stands at 1,127,571 *l.* as compared with about 1,630,000 *l.* in 1867. In 1876 the total income was 317,772 *l.* and the expenditure 316,044 *l.* Steady progress was made in carrying out the arrangements for the improvement of the water supply, and schemes for the much-wanted good system of drainage were fully discussed by the Corporation. Besides the city of Bombay, there were 9 city and 184 town municipalities in the Presidency at the close of the year, 8 new municipalities having been started. The total revenues shewed an increase from 255,291 *l.* in 1875-6, to 261,263 *l.* in 1876-7. The average incidence of taxation per head of the municipal population declined from 2*s.* 1¾*d.* to 2*s.* 0¼*d.* Bombay.

The Government of India passed 23 Acts in 1876 and 19 in 1877. The first 10 Acts of 1876 were noticed in last year's statement. Among the remainder were one for *constituting and regulating the Banks of Bengal, Madras, and Bombay* (No. XI.); two specially referring to Oudh; one *for the better control of public dramatic performances* (No. XIX.); and one (No. XXIII.) *to amend the law* LEGISLATION. India.

LEGISLATION. *relating to opium*. The most important Acts of 1877 were *The Indian Registration Act* (No. III.), which amended the law relating to the registration of documents in British India; *The Presidency Magistrates' Act* (No. IV.), which regulated the procedure and increased the jurisdiction of the Courts of Magistrates in Presidency towns; *The Code of Civil Procedure* (No. X.); *The Indian Limitation Act* (No. XV.), which amended the law relating to the limitation of suits, appeals, and certain applications to the courts, and provided rules for acquiring by possession the ownership of easements and other property; and *The Salt Act* (No. XVIII.), raising, from 28 December 1877, the duty on salt in Madras and Bombay from *Rs.* 1. 13. to *Rs.* 2. 8. per maund of 82⅔ lbs.

Bengal. The Bengal Council passed 6 Acts during 1876-7, one *to amend and consolidate the whole municipal law in the mofussil* (V. of 1876); one *to provide for inquiry into disputes regarding rent, and to prevent agrarian disturbances* (VI. of 1876); one *to provide for the registration of land* (VII. of 1876); one *to amend and consolidate the law relating to the partition of estates* (VIII. of 1876); one *to amend the Jute Warehouse and Fire Brigade Acts* (I. of 1877); and one *to provide for the levy on immovable property of a cess for the construction, charges, and maintenance of provincial public works* (II. of 1877).

N. W. Provinces. At the close of 1876-7 was issued the North-Western Provinces Code, published by the Legislative Department, and containing in a compendious form all local Regulations and Acts in force in the province.

Oudh. Two special Acts for Oudh were passed in 1876, Act XVII., the Oudh Lands Revenue Act (*to consolidate and define the law relating to land revenue in Oudh*), and Act XVIII., the Oudh Laws Act (*to declare and amend the laws to be administered in Oudh*). The Oudh revenue system, in consequence of the talukdari settlement and other circumstances, differs considerably from that which prevails in other parts of India, and it was expedient to collect the various rates and orders in one enactment. The Oudh Land Revenue Act, however, will not cause many changes in revenue practice. The most important innovation caused by this Act and the Oudh Laws Act is the creation of a new tenure. Landholders whose estates are sold for arrears of revenue or in execution of a decree will in future be granted a right of occupancy in the whole or a portion of the land which they may have held in cultivating occupancy. This is the second class of tenants with a right of occupancy that has been introduced into Oudh, the tenure having been first created by Act XIX. of 1868.

Punjab. The only Act passed by the Government of India in 1876-7 having special reference to the Punjab was Act IX. of 1877, reviving and continuing during the pleasure of the Governor General in Council Act XXIII. of 1867, for the suppression of murderous outrages in frontier districts, the latter Act having expired on 18 March 1877.

British Burma. Two Acts relating to British Burma were passed early in 1876; viz., *The Burma Land and Revenue Act* (II. of 1876), and *The British Burma Labour Law* (III. of 1876). The first of these measures gave legal effect to the rules under which the revenue administration of the province had previously been conducted, and by its declaration of the rights of holders of land, and the regulation and procedure in the settlement of land and realisation of a Government revenue, will be of incalculable benefit to the country. Under the second measure, which regulated the transport of labourers to the province, and their employment therein, a scheme had been framed for immigration from the Madras coast, and it was hoped that the new enactment would prove a more durable success than the former regulations for the importation by Government of labourers from Bengal: but these expectations have since been disappointed.

Madras. Only 1 Act was passed by the Madras Government in 1876, and 1 in 1877. Neither of these Acts was of any importance. The Bill which especially occupied the attention of the Council during 1876-7 was that for consolidating and amending the Madras Municipal Acts.

Bombay. Of the 3 Acts of the Bombay Government that became law during 1876-7, the one making vaccination compulsory in the city of Bombay (No. I. of 1877) was of the most general interest, owing to the severe epidemic of small-pox in the early months of 1876. The provisions are founded on those of the English Vaccination Act of 1867. The measure which elicited most attention and also opposition was the Bill to amend the existing Act for the suppression of fraudulent practices in the cotton trade, which passed the Legislative Council, but did not become law within the year.

II.

JUSTICE AND POLICE.

THE number of offences reported by the police in Bengal rose from 172,930 in 1875 to 186,183 in 1876, and of persons convicted from 92,919 to 98,792. Dacoities declined from 291 to 172, murder having been committed in only three instances. The great decrease in dacoity throughout the province is attributed partly to Sir R Temple's orders of 30 November 1875, in which he expressed his intention of no longer tolerating the prevalence of this crime in Bengal, and partly to a season of prosperity and commercial and agricultural activity. There was a slight increase, from 2,679 to 2,703, in the reported offences against public tranquillity, and the number of murders rose from 357 to 382. There were 10 attempts at thuggee during the year. The number of convictions that were followed by imprisonment was larger in 1876 than in any year since 1866, except 1874, the increase being probably due to the imprisonment of a greater number of bad characters under Chapter 38 of the Criminal Procedure Code. The total number of reconvicted prisoners was 6,471, or 12·30 per cent. of the jail population. Reconvictions returned during the year have steadily advanced from 1,377 in 1872 to 3,714 in 1876, an increase of 169 per cent. Juvenile prisoners numbered 471, against 413 in 1875 and 535 in 1874. CRIME. Bengal.

In Assam during 1876 the cognisable offences reported by the police numbered 10,900, of which 8,850 were accepted as true. As the true cases in 1875 were 7,887, the figures shew a considerable increase of crime in the province. The increase was almost confined to offences against the State, especially rioting and unlawful assembly, and to offences connected with property. A greater number of quarrels and riots regarding the possession of land arose from an increase of cultivation in Sylhet, in order to make up for the bad season of 1875. Serious offences against the person were less numerous. Robbery complaints increased, but in the majority of instances appeared to be mere assault cases exaggerated into cases of robbery. They almost all occurred in Cachar, where peculiar facilities for obtaining false evidence are afforded by the establishment of *dols* or societies for mutual assistance among the villagers. Organised cattle-stealing is infrequent in the province; but in the Sibságar district the Nágas, who constantly visit the plains to barter their hill commodities for rice, &c., take advantages of the careless manner in which the cattle are allowed to stray into the jungle, and now and then drive off a few head, which can seldom be recovered. A patrol has been started along the frontier to check this description of crime. Owing to greater efficiency of the administration, the opening of more courts, the high prices of food, and the increase in the number of immigrants from other provinces to labour on the tea-estate, the jail population has been steadily growing, the daily average number of prisoners confined during 1874, 1875, and 1876, being 1,207, 1,335, and 1,487 respectively. Convicts who had been previously imprisoned formed 7·17 per cent. of the total number. Juvenile offenders under 16 years of age numbered only 24. Assam.

In the North-Western Provinces the total number of cognisable offences reported by the police was 107,276 in 1876 against 107,139 in 1875, but, excluding cases of simple hurt and offences against municipal bye-laws, the number investigated fell from 92,883 to 73,504, a result mainly due to the fact that it is now left to the discretion of the police to inquire into petty thefts and attempts at burglary. There were fewer murders in 1876 than in any of the five preceding years. Dacoities increased from 38 to 57, but since the close of the year this crime has been crushed in the Agra division, where it was especially troublesome. The number of cattle stolen fell from 9,285 to 7,739. On 27 November 1876, a serious riot took place at Khúrja in connexion with the celebration of the Rath Jatra festival by the Jains or Saraogis, who are only a small portion of the population. A procession formed to convey the idol Parasnath from the old shrine to a new temple on the outskirts of the town was attacked and broken up by a mob of Vaishnus or orthodox Hindus and low-class Mahomedans, armed with sticks and stones. An attack was then made N. W. Provinces.

CRIME.

on the temple, which was gallantly defended by the police on guard. Shots had to be fired and repeated charges made by the police before the mob was dispersed. Many of the ringleaders were afterwards tried and convicted. The case of Mr. Fuller, who accidentally killed a native servant by a blow, acquired notoriety from the importance of the questions to which it gave rise, as to the position of the High Court of Judicature in reference to the supreme executive authority. Criminal tribes proclaimed under Act XXVII. of 1871 were carefully watched, and induced as far as possible to betake themselves to agricultural or industrial pursuits. The total number of convicts confined in the jails of the North-Western Provinces was 55,188 in 1876, as compared with 57,681 in 1875. The daily average fell from 22,594 to 21,687. The decrease during the last two years is attributed to the greater prosperity of the agricultural classes. The number of reconvicted criminals in jail during 1876 was 6,239, including 208 females. Juvenile offenders under 16 years of age numbered 423 boys and 34 girls.

Oudh.

There was again a decrease of crime in Oudh during 1876, owing to a diminution in the number of offences against property. Murders and attempts to murder rose from 109 to 133, and the cases of robberies reported from 148 to 185. The number of dacoities was 24, the same as in 1875; in 10 cases persons were arrested, but in 6 only were convictions obtained. Cases of riot and unlawful assembly fell from 312 to 283, a smaller number than in any year since 1868. Cattle poisoning for the sake of the skins has been nearly stopped. Cases of serious mischief, such as arson, rose from 194 to 361. The prisons were not nearly so full as in 1875, the total jail population (including convicts under trial and civil prisoners) declining from 35,150 to 33,385, and the average daily number from 8,243 to 7,542. This was probably due in a great measure to the cheapness of grain. About 22 per cent. of the convicts had been previously convicted. The proportion of juvenile offenders was higher than usual, being 2 per cent. of the whole number of convicts.

Punjab.

There was a satisfactory diminution of crime during 1876 in the Punjab. The offences reported fell from 93,863 to 91,139, and the persons brought to trial from 152,651 to 150,323. There was an increase in those minor offences which are more directly due to legislative action and the operation of laws against breaches of municipal and cantonment rules. Murders in frontier districts, especially in Peshâwur, have steadily decreased from 194 in 1872 to 138 in 1876. Owing, however, to the Pass complications the murders in Kohât rose in 1876 from 12 to 18. The Minas of the Gurgaon district were in July 1876 declared subject to the Criminal Tribes' Act, No. XXVII. of 1871, thus making the seventh tribe brought under the operation of the Act in the Punjab. Cases under this Act increased from 65 in 1875 to 215 in 1876. Out of a total jail population of 41,365 one-tenth of the prisoners had been previously imprisoned; among females the proportion of reconvictions was only 3 per cent. Juvenile offenders under 16 years of age numbered 408 (including 28 girls); the proportion of reconvictions being 21 per cent.

Central Provinces.

In the Central Provinces there was a decrease in murder, and other serious offences against the person, dacoity, and robbery. Only three dacoities were reported, and it is hoped that this form of violent crime is being gradually stamped out. The ordinary offences of burglary and theft decreased from 19,457 to 18,899. The total number of cognisable offences advanced from 30,155 to 30,838, the increase being entirely in minor offences, such as Excise prosecutions and nuisances.

British Burma.

The rise in the price of food during 1876 in British Burma led to a corresponding augmentation of crime, the increase being chiefly in offences against property. Offences of the graver kinds either diminished in number or remained stationary. Gambling, a fertile cause of crime among a people passionately devoted to it, appears from the returns to have extended simultaneously with theft. The class which furnished the largest number of convicts, in proportion to its numbers, was that of Hindus; Christians came next, more than half of them being Europeans, principally court-martial prisoners and sailors. The daily average number of convicts in prison rose from 4,546 in 1875 to 4,822 in 1876; and the total number received into jail during the year was 9,257. Reconvicted prisoners formed 19·33 per cent. of the whole number under confinement. Juvenile offenders were fewer than in 1875.

Ajmere.

An increase of crime in Ajmere and Mhairwarra was possibly caused in some degree by wholesale expulsion of notoriously criminal tribes from the neighbouring native States, and also by the opening of the railway, giving a new field

of operations to the Agra and Delhi criminal classes. The number of professional cardcheats who came from those cities, especially at fair times, increased the cases of gambling. There were three dacoities in the year. Thefts and burglaries continue the normal crime of the district. The daily average number of convicts in prison was 348. The proportion of re-convicted prisoners to the whole number under confinement was 7·29 against 5·34 per cent. in 1875. Juvenile offenders numbered 15. CRIME.

There was more crime in Berar in the year under report than in the preceding one. The increase occurred chiefly in offences against property, and is attributed partly to the difficulties into which the poorer classes of Berar were thrown by the high price of grain, and also in some degree to the immigration of a large number of needy persons from the adjoining famine-stricken districts. The actual number of offences ascertained to have been committed in 1876 was 14,119, as against 13,231 in 1875. Of offences cognisable by the police 67 per cent. were sent up for trial; but the rate of convictions in non-cognisable cases was still somewhat unsatisfactory, being only 47 per cent., and magistrates have been enjoined to institute careful inquiries at the time complaints are presented, in order to reject those which are *primâ facie* frivolous and vexatious. The sentences shewed extreme leniency on the part of the majority of the magistrates. The number of convicts in prison rose from 2,634 in 1875 to 2,940 in 1876, including 185 and 210 females respectively. There was an increase from 139 to 167, or nearly 17 per cent. among female convicts admitted during the year. Reconvicted prisoners formed 16·5 per cent. of the whole number. Among the prisoners were included 20 boys and two girls, as compared with 29 boys and two girls in 1875. Berar.

Owing to the famine and consequent severe distress prevailing in Mysore, crime increased during 1876. The total number of offences reported rose from 13,018 to 15,996, an increase of nearly 23 per cent. There was not much variation in the more heinous crimes against the person, nearly all the increase under that class being in cases of simple hurt and assault. Murders fell from 45 to 42. Dacoities and robberies more than doubled, the former rising from 51 to 187, the latter from 57 to 127, and the increase was even larger in the number of persons brought to trial for these offences. Cases of theft and housebreaking considerably increased. The number of cattle thefts was nearly double, a great many being committed by professional cattle-lifters. The daily average strength of the convict population rose from 1,644 in 1875 to 1,893 in 1876. The total number in confinement during the year was 8,397 (7,957 males and 440 females). Recommittals rose from 345 to 433. There were 123 juvenile prisoners, as compared with 71 in 1875. Mysore.

With regard to the state of crime in Coorg, there was a satisfactory decrease in the number of cases of the more heinous nature. The convictions were only 55·5 per cent. of the cases tried; but the number of prisoners increased from 699 in 1875 to 842 in 1876. Coorg.

In the Madras Presidency an increase of crime followed in the wake of the famine, and the number of offences reported to the courts, rose from 64,940 in 1875 to 75,004 in 1876, and of offenders brought to trial from 83,974 to 91,379. With regard to dacoity in particular, the famine at once turned the tide of successful though gradual repression, so that the distressed districts were inundated with this crime. The number of cases rose from 229 in 1875 to 980 in 1876. Known depredators took little part in the dacoities, which were committed almost entirely by the starving population. The property looted was chiefly grain; but cattle dacoities were also frequent. Several grain riots occurred consequent on the prevailing high prices; but not in the districts where the distress was very great and where the authorities were always on the lookout for such disturbances. A slight increase occurred in the number of murders. No serious increase of crime in the Presidency town resulted from the pressure of high prices, nor was its peace disturbed. Since 1872, when it was 21,975, the number of convicts in confinement has steadily increased. It rose from 26,624 in 1875 to 33,119 in 1876, and the average daily number from 9,489 to 10,378. Transportations increased from 212 in 1875 to 461 in 1876. The number of old offenders, male and female, was slightly larger in 1876 than in the previous year; but the increase was entirely among those who had been only once previously convicted, while there was a decrease under those Madras.

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who had been convicted on more than one previous occasion. Juvenile offenders increased in number from 368 in 1875 to 399 in 1876, the reconvictions rising from 77 to 119.

Bombay.

Criminal courts in the Bombay Presidency took cognisance of 66,156 offences, and tried 113,719 persons, of whom 62,290 were acquitted, and 48,505 convicted. Though the season was one of widespread distress, the total number of offences was less by 605 than in the previous year. The famine districts naturally shewed a rise in certain offences. Gang robberies increased from 69 to 199. These crimes were often robberies of grain, and were perpetrated by wandering tribes under pressure of want. The number of persons committed to prison in 1876 increased from 19,027 to 20,499, but the increase was almost entirely at the end of the year, owing to the high prices of food grains. A serious increase in the proportion of reconvictions is probably due rather to increased care in bringing to light former convictions than to any growth of professional crime. The number of persons reconvicted rose from 2,797 in 1875 to 3,307 in 1876. During the year 207 convicts, compared with 189 in 1875, were transported to the Andaman Islands. There was a slight decrease in the number of juvenile convicts.

INFANTICIDE.
N. W. Provinces.

In the North-Western Provinces 3,011 villages, with a population of 364,678 souls, were under the operation of the Infanticide Act at the beginning of 1876-7. The girl percentage rose from 30 to 31·9, while the figures point to more normal birth-rates and a steadily improving ratio of female infantine mortality. Owing to bad reporting in many districts, it is still impossible to frame accurate statistics on this important subject. The conditions of life in India are so different from those in England, and registration of births and deaths is so imperfect at present in India, that scarcely any comparison between Indian and English rates can as yet be of much value.

Oudh.

There is reason to believe that infanticide is not rife in Oudh. From a census taken in 689 villages, the girls were found to be 45·25 per cent. of the whole Rajput children.

MAGISTRATES.
Bengal.

The passing of the Presidency Magistrates Act (IV. of 1877), which came into force on 1 April 1877, has enabled the Government to avail itself more largely than before of the services of honorary magistrates in Calcutta. Such magistrates were previously employed in hearing municipal cases only, but now they sit in rotation with the stipendiary magistrates as a bench for the disposal of police cases.

Oudh.

In Oudh, 7 per cent. of the civil suits decided during 1876 were tried by honorary assistant commissioners. One of these native gentlemen disposed of no less than 731 cases.

Punjab.

About 12 per cent. of the criminal cases in the Punjab during 1876 were disposed of by honorary magistrates.

Central Provinces.

In the Central Provinces nearly 30 per cent. of the total cases dealt with by the Courts were tried by native honorary magistrates. They give a great deal of assistance, and generally perform their work in a satisfactory manner. The work of the Courts was disposed of with fair regularity and dispatch, 93 per cent. of the witnesses being discharged, and 80 per cent. of the cases decided, in one day. In only 5 per cent. of the decided cases were there appeals, and in four-fifths of these the judgment was upheld.

British Burma.

Native magistrates in British Burma worked conscientiously and well during 1876. Their sentences are said to have generally the merit of substantial justice, and to be acceptable to the people.

Ajmere.

The bench of honorary magistrates in Ajmere city performed in 1876, as usual, a very large share of the criminal work.

Berar.

In Berar during 1875 and 1876 material assistance in the disposal of petty criminal cases was given by the native special (or honorary) magistrates.

Mysore.

Numbers of innocent persons were unnecessarily dragged into the criminal courts of Mysore during 1876, by order of magistrates. The inefficiency of the subordinate third-class magistrates in Mysore is stated by the Judicial Commissioner to be the weak point of the criminal administration of the province, and to urgently call for reform.

MAGISTRATES. Madras and Bombay.

No information has been received on the subject of the honorary magistrates in the Madras and Bombay Presidencies.

POLICE. Bengal.

During 1876 the conduct of the Bengal police shewed no improvement. Dismissals and judicial convictions were numerous, and there were several instances of torture, maltreatment, and extortion. The result of inquiries was not creditable in thefts, while the failure of the police in burglary cases was most lamentable. Almost all the inspectors and sub-inspectors, and most of the head constables, were able to read and write, and the number of constables in the metropolitan districts who can speak English is increasing. The health of the force during 1876 was bad in many districts.

Assam.

At the close of the year 1876 the strength of the Assam police force, of all ranks, was 3,374 men, the permanent additions during the year being 19 constables. More attention was paid to drill, which is of much importance in a province where the police are liable at any moment to be called out to oppose the incursions of savage border tribes. The frontier police in Sylhet and Cachar were especially well instructed. Some improvement was effected in the condition of the village police in Sylhet. On the whole, the Assam police was in as good order as could be expected, considering the low rates of pay and the difficulty of procuring intelligent men.

N. W. Provinces.

The strength of the North-Western Provinces police force in 1876 was 25,664, and the total charges 503,152 *l.* An entire redistribution of road chaukidars was made, by which each district secured for its frequented roads an amount of watch and ward amply sufficient to protect travellers. There was a slight decrease of departmental punishments among the men, but a considerable increase among the officers of the force.

Oudh.

In 1876 the police force in Oudh numbered 977 officers and 4,898 men, costing 90,214 *l.* There were also 196 officers and 1,596 men of the city, cantonment, extra, and municipal police, costing 14,363 *l.*, and 32,772 village watchmen, costing 91,776 *l.* Of the regular police, 3,843 were provided with firearms; 530 officers and 381 men could read and write, and 253 were under instruction. The health of the force was good, the death-rate being only 1·1 per cent., while the percentage in hospital fell from 2·19 to 1·79.

Punjab.

The strength of the Punjab police force during 1876 was 20,261, costing 309,634 *l.*, or 2 *a.* 1 *p.* per head of the population. The police of the province admirably discharged the heavy duties in connexion with the camp of exercise at Delhi and along the line travelled by the Prince of Wales, and also at the Imperial assemblage at Delhi. With regard to the arrangements of the latter, notwithstanding the numbers of camp followers and persons from Native States, not a single crime of violence was committed, and there were fewer thefts than at ordinary times.

Central Provinces.

In the Central Provinces the police are yearly becoming more efficient in looking after criminals. Released convicts are now registered and known. The entire police force stood at 8,576, and cost 131,930 *l.* Their conduct was generally good, gross abuses of authority being rare. Two cases of torture occurred, and the offenders were prosecuted to conviction.

British Burma.

The police force of British Burma in 1876 consisted of 22 gazetted officers, and 6,830 non-gazetted officers and men. There was one man to every 12·9 square miles of area, and to every 439 souls of the population. The unattractiveness of the service, and the indolent volatile character of the people, cause continual changes of members year after year, in spite of every effort to retain the men. In 1876 no less than 1,234 voluntarily resigned, 795 were dismissed, and over 200 left the force in other ways. These changes cause the police to fail in that professional skill which long experience alone gives, and by which alone secret crime can be detected.

Ajmere.

As the Ajmere and Mhairwarra Districts are completely surrounded by foreign territory, the police is essentially a difficult charge, and the percentage of property recovered to property stolen is low, as might be expected, where escape out of British jurisdiction is so easy. In 1876 the sanctioned strength of the force was 586, and its cost was 9,564 *l.*

Berar.

As compared with 50,703 *l.* in 1875-6, and 46,521 *l.* in 1874-5, the total cost of the Berar force in 1876-7 was 51,210 *l.* The increase since 1874-5 was chiefly due to the pay of constables having been raised in December 1874. The beneficial results of this arrangement have been shewn in many ways. In 1876 there were 763 men of 10 years' service, as against 407 in 1874. The

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service has now been placed on such a footing that men are adopting it as their life's profession. Of the total property said to have been stolen during the year, only 28 per cent. in value was recovered up to the close of the year. The action of the police was not considered very successful, but figures under this head are always open to doubt, owing to the exaggerated value naturally assigned to lost property by the professing losers.

Mysore.

The Mysore police force numbered 4,398 in 1876, against 4,066 in 1875. The cost was 64,022 *l.* The number of educated members was 2,196. Owing to the circumstances of the province, the services of every policeman were required at his post, and the police school was closed during the latter half of the year. Stricter discipline was enforced, and the number of punishments increased, while there was a slight decrease of rewards.

Madras.

A good name was earned in 1876 by the police of the Madras Presidency. In the month of March a force of 200 men gave material assistance in quelling the disturbance that occurred in the native state of Bastar, in the Central Provinces. A violent outbreak of organised dacoity in Malabar during the early months of the year was suppressed with much energy by the police, who succeeded in the course of a few months in restoring peace and security to the community. On the occasion also of the hurricane which swept over the towns of Vizagapatam and Chicacole in October 1876, the police rendered valuable service and shewed much humanity. But other and greater demands were made on the department in consequence of the famine. The strain on the police was very great; and to meet the pressure an extra force of 3,302 men were employed. Night police patrols in the affected districts gave confidence to the villagers, and kept the high roads comparatively safe. Considering the vast quantities of grain and treasure passing through the midst of the starving population, it is remarkable that few grain thefts occurred and no treasure was lost. An improvement in the discipline of the men was indicated by the decrease in departmental punishments. The death rate of the force was 19 per 1,000, which is a great increase on the average of recent years. The salaried village police also gave valuable aid to the regular force in the prevention and detection of crime. The total cost of the entire force was 401,235 *l.*, of which 34,972 *l.* appertained to State services, 2,687 *l.* to village police, and 22,296 *l.* to extra famine charges. Altogether the force numbered 26,864 men; and the proportion to population was 1 to 1,355, and to area 1 to 5 square miles.

Bombay.

Towards the close of 1876 the 4 southern districts of the Bombay Presidency were placed under a separate revenue and Police Commissioner, the entire force thus consisting of 6 separate bodies, with a strength of 21,492 members, at a yearly cost of 359,300 *l.* The conduct of the police shewed little improvement compared with previous years, but is said to have been on the whole satisfactory. Only 31 per cent. of the whole force in 1876 were able to read and write.

PRISONS.
Bengal.

Nearly 20 per cent. of the total number of effective convicts in Bengal during 1876 were employed as prison officers and servants, and 53 per cent. were employed on manufactures; the remainder were occupied in the jail gardens, in extramural labour, or in building operations. Penal labour was not exacted from the full number of prisoners liable to that form of employment, owing to a deficiency in the appliances in some jails. Orders have been issued to remedy this as soon as possible. The larger jails shewed an improvement in respect of manufactures. The principles kept in view were the reduction of the number of petty manufactures, and the selection for each large jail of some special industry suited to its particular circumstances. The mark system worked well, and remission of sentence was earned in 539 instances, against 360 in 1875. Some district jails are such only in name. They consist simply of a cluster of badly constructed and insecure huts, where it is most difficult to enforce discipline or to carry out jail regulations. Under recent rules for utilisation of convict labour in construction of jail buildings, it will be possible to erect substantial buildings at a moderate cost and to obviate delay in carrying out petty improvements. The mortality from cholera in 1876 was above the average, the death-rate from this cause being considerably higher than in any year since the famine year 1866. The general death-rate was however slightly lower than usual. Some progress was made towards opening the proposed reformatory school at Alipore for juvenile offenders.

Some improvement in jail management was effected in Assam during 1876. Many jails are very insecure, and reforms connected with structural deficiencies will require both time and money to carry out. Of the prisoners admitted during the year 95 per cent. were wholly illiterate. Sickness and mortality were rather higher than in 1875, owing to general causes and not to any inattention to sanitary measures. No necessity exists for a reformatory in the province, because of the small number of juvenile offenders. PRISONS. Assam.

In the North-Western Provinces much was done towards enforcing a stricter and more distasteful kind of imprisonment in the case of habitual criminals. Out of 55,188 convicts, 387 were released under the good-conduct rules. Of the 31,059 male convicts imprisoned during 1876, only 2,196 could read and write, and all but 13 out of 2,104 females were quite illiterate. The daily average number of convicts under instruction was 2,344, out of a total of 20,659. The health of prisoners in jail improved appreciably in 1876, the death-rate falling from 27 to 25 per 1,000. The mortality must be regarded as very slight, seeing that over 24 per cent. of the convicts were above 40 years old, and over 20 per cent. of the prisoners admitted were in indifferent or bad health. It was not found practicable to establish any reformatories proper in the provinces; the nearest approach that has been made is the confinement of juvenile convicts in a separate division of the central prisons, where they are taught useful handicrafts and educated. N. W. Provinces.

About 93 per cent. of those imprisoned in Oudh during 1876 could not read or write. In previous years the per-centage was 97. More attention was paid to education than in any former year. The health of the prisoners was good, and the death-rate only 1·3 per cent. Oudh.

In the Punjab temporary accommodation was provided for the prisoners at Amritsar, where the jail buildings had been nearly washed away; and the new jail at Bannu was completed and brought into use. The total jail population decreased from 43,519 in 1875 to 41,365 in 1876. Ninety-six per cent. of the prisoners were quite illiterate. The death-rate of the prison population rose from 3·19 to 3·66 per cent., and there was more sickness than in the year before, the admissions into hospital increasing from 17,995 to 23,178, of which intermittent fever accounted for 14,082. Expenditure declined from 99,838*l.* to 86,783*l.* The Thaggi School of Industry numbered 96 inmates at the close of 1876, as compared with 102 in 1875. Tent manufacture forms almost the only industry of the school, but owing to the small demand for tents in 1876, the institution was worked at a loss to the State of 143 *l.*, whereas in 1875 it yielded a profit of nearly 400 *l.* Punjab.

The appointment of Inspector General of Jails in the Central Provinces was during the year combined with that of Inspector General of Police, and considerable changes of jail system were introduced. The system of keeping habitual criminals separate, as in the North-Western Provinces, is being introduced, in order that stricter discipline may render imprisonment distasteful to their class. The attention of the Courts has also been drawn to the light sentences frequently passed on such offenders. The death-rate in jails was unusually high, viz., 41 per 1,000; but the year was an unhealthy one, and many convicts were admitted in a weak state of health. Sanitary arrangements were on the whole satisfactory. Central Provinces.

Taken altogether, the jails in British Burma contain sufficient space for the prisoners that are from time to time confined in them; but that space is not conveniently distributed, and necessitates a continual and expensive process of transfer from jail to jail within the province. In 1876 the number of these transfers was 2,167. Of the whole body of prisoners, 47 per cent. could read and write more or less, and the rest were wholly uneducated. Industrial operations shewed a financial profit amounting to 13,850 *l.* The death-rate was 2·63 per cent. of the average strength, against 2·35 per cent. in 1875. A reformatory is to be established for the thorough segregation of juvenile offenders. British Burma.

In Ajmere a new set of jail rules, which on the whole worked well, was issued during the year. More than 97 per cent. of the convicts were under instruction, and the progress generally was satisfactory. The juvenile prisoners are kept apart from the adults; 4 out of the 15 were taught trades, as well as reading and writing. Ajmere.

In the jails of the Hyderabad Assigned Districts the discipline was well maintained, while punishments decreased from 680 to 387. Some slight changes were introduced in the dietary, more vegetables being distributed as a preventive Berar

PRISONS.

of scurvy. While cholera lingered near Akola, the prisoners in the jail there were fed on wheaten bread instead of jowari. Of the 2,039 prisoners admitted during the year 1,962 were quite illiterate. The total expenditure in the Jail Department was 9,676 *l.*, as against 7,154 *l.* in 1875, the increase occurring chiefly under the head of Buildings, owing to inclusion of the cost of the construction of the Ellichpur lock-up. Juvenile offenders, all of whom are confined in the Akola jail, had to attend school for four hours daily, and made marked progress in reading and writing.

Mysore.

The conduct of prisoners in Mysore was generally good; but there was no release for good conduct. Almost every second man received the benefits of education. The general health was less favorable than in 1875, and the death rate per cent. of average strength rose from 3·4 to 4·18.

Coorg.

In Coorg three-fourths of the daily average number of prisoners in the jails were under instruction during 1876; and the health of those in confinement was fairly good.

Madras.

There was great pressure on the jails in the Madras Presidency owing to the famine, the jail population in 1876 rising by nearly 30 per cent., as compared with that of 1875. The increase took place in the second half of the year. To reduce the pressure the magistrates had increased recourse to the Whipping Act, which is reported to have worked satisfactorily. The number of offenders flogged rose from 2,317 in 1875 to 3,457 in 1876. Jail camps also were established in several places. Little progress took place in the education of convicts, though an hour a day was still devoted to the purpose. The segregation system was being tried in the central jail at Coimbatore and the Penitentiary in Madras. The death-rate was 42·4 per 1,000 of daily strength against 39·0 in the preceding year; but the increase was not so great as might have been expected considering the unusual insalubrity of the season. A reformatory school for males is to be established near Madras, and will be located in the Government farm, where the boys will be trained in agricultural trades.

Bombay.

The gross expenditure on prisons in the Bombay Presidency in 1876 was 105,337 *l.*, or 287 *l.* less than in 1875. The general health of prisoners was much better in 1876 than in 1875, the per-centage of admissions into hospital being 78·3 as against 95·3, while the death-rate fell from 3·3 to 2·1 per cent. Of the three institutions for boy offenders the accounts were good. The boys were learning to read and write, and being taught some useful craft. No boy, after discharge, had yet been sentenced for a second offence.

CIVIL JUSTICE.
Bengal.

The number of suits before the Calcutta High Court in its original jurisdiction during 1876 was 2,001, against 1,414 in 1875 and 1,356 in 1874. On the appellate side the High Court disposed of 7,304 appeals and applications, as compared with 6,815 in 1875. In the Calcutta Court of Small Causes there was a great falling-off in the number of cases instituted during 1876-7, as well as in the amount in litigation, the decrease being attributed to the decision pronounced by the High Court in April 1873, to the effect that the Court of Small Causes has no power to seize tiled huts in execution of its decrees. The steady increase in litigation which had taken place in the courts in the interior of Bengal for some years was fairly maintained in 1876, and was chiefly observable in the Munsifs' Courts, the number of suits instituted therein being 285,556, against 274,623 in 1875. The increase in litigation is due to the normal increase in the population, the more general distribution of wealth, the better education of the people, and the keener appreciation by them of their rights. With regard to the disposal of suits the outturn was very favorable as compared with the outturn in the two previous years. Registrations of deeds in Bengal rose in number from 457,651 in 1875-6 to 465,574 in 1876-7, but the increase would have been much more but for the great falling-off in registration in the rich Backergunge, Noakholly, and Chittagong districts, which suffered so severely from the cyclone and storm-wave of 31 October 1876. A small but steady advance was shewn in the number of wills registered. Reports on the working of the Mahomedan Marriage Registration Act were not favorable; though 77 officers were at work in 14 districts, only 2,234 ceremonies were registered during the year.

N. W. Provinces.

During 1876 there was a general increase in litigation in the North-Western Provinces. The total number of original suits and appeals in civil courts subordinate to the High Court rose from 98,422 to 106,197; and the number of suits instituted in courts not subordinate to the High Court rose from 4,313

to 4,913. The total value of suits and appeals disposed of in courts of the former class was 2,225,070 *l.*, and the costs of the litigation amounted to 278,580 *l.* In courts of the latter class the value was 26,033 *l.*, and the costs 3,294 *l.* Owing to good harvests, and the consequent prosperity of the people, the number of registrations effected fell from 142,918 to 133,725. Comparatively few agricultural leases, of which the registration is compulsory, are actually registered. It is stated that the causes are to be found in the expense and inconvenience which formal registration involves, and in the ignorance of the people that there is a law requiring them under certain conditions to register their leases, and perhaps in the neglect of the revenue courts to remember that they are forbidden to receive as evidence unregistered leases which the law requires to be registered. CIVIL JUSTICE.

Civil litigation in Oudh increased in 1876, the number of suits instituted rising from 67,928 to 72,780. The increase was in suits of low value, the property under litigation being worth only 518,999 *l.*, or one-third less than in 1875. The number of deeds registered in Oudh during 1876-7 was 38,002. The average annual number of registrations under the old Oudh rules for the 5 years ending 1869 was 72,615, and of those effected under Act VIII. of 1871 during the five years from 1872-3 to 1876-7 was 39,801. This falling-off is probably due not so much to the increased cost of registration as to the comparatively cumbrous procedure under the Act of 1871, and to the reduction in the number of offices. In 1868 there were 210 offices in Oudh, or 1 to every 109 square miles; in 1876-7 there were only 132, or 1 to every 174 square miles. The receipts from registration were 5,887 *l.*, and the charges4, 165 *l.* Oudh.

The total number of original suits instituted in the civil courts of the Punjab during 1876 was 239,796 as compared with 230,607 in 1875. The courts disposed of 247,251 cases, most of which were for money due. The value of suits disposed of was 1,229,287 *l.* against 1,188,567 *l.* in the previous year. The relief afforded by the establishment in 1875 of the Munsifs' Courts and the creation of a new class of purely judicial officers, continues to be substantial. During 1876 the munsifs disposed of 44·8 per cent. of the total civil litigation of the province, and each of the 74 munsifs decided, on an average, 1,499 cases during the year. European judges took only 16 per cent. of the cases. The Small Cause Courts had only 15,991 cases before them, as compared with 31,368 in the preceding year. Money suits against agriculturists fell from 9,386 to 537. The decrease in the business of these courts is due to the working of the judicial scheme of 1875. Since the close of the year several of the courts have been abolished as unnecessary. A noticeable feature of the year was the increase of appeals. In District and Divisional Courts they rose from 13,069 to 13,995, and in the Chief Court from 1,801 to 1,980. The large increase in the appellate work of District Courts was mainly due to the establishment of Munsifs' Courts, and the consequent increase in the number of suits disposed of by officers with subordinate powers. Appellate work of the Chief Court has increased steadily since 1872 in regular appeals from 242 to 686, and in special appeals from 1,178 to 1,294. Since the Registration Act came into force the number of registrations has annually declined, except in 1875-6, when the number was 71,717, as compared with 95,746 in 1871-2. The decrease has been chiefly in optional registrations. In 1876-7 there were 30,931 compulsory, and 30,183 optional registrations, or 61,114 in all. The falling-off is attributed in part to the very general and severe sickness which prostrated the people and paralysed trade during the latter half of the year. The year was also one of plentiful harvests, which placed the agriculturists to some extent above the necessity of borrowing or of selling and mortgaging their lands. Further, the progress in the settlement of land revenue of the several districts has a constant and direct tendency to diminish the number of optional registrations, owing to the minute details entered in the settlement record. Punjab.

In the Central Provinces the number of civil suits increased from 78,777 in 1875 to 86,265 in 1876, but the litigation was of a very petty kind, 83 per cent. of the suits instituted being claims for money due on bond or contract, and 90 per cent. of those disposed of involving less than 100 rupees. The average duration of suits was 25 days for contested and 17 days for uncontested cases. Appeals from the law courts are not numerous. Registration shewed no tendency to increase; the number of deeds registered was rather lower than in the previous year. Written leases for land are uncommon in the Central Provinces. In one district mortgages of estates increased in number, and in another tenant holdings were largely transferred. Central Provinces.

CIVIL JUSTICE.

British Burma. The number of civil suits instituted during 1876 in British Burma was slightly larger than in 1875, while in the value of property under litigation there was some diminution. Subordinate courts, in which the bulk of the civil business of the country is carried on, performed their work satisfactorily. For 31,966 suits instituted throughout the province, there were only 8,605 applications for execution of decrees. The work of registration was carried on at 37 offices, and shewed a slight increase during 1876-7. Of the total number of registrations 2,918 were compulsory, and only 200 voluntary. Natives of the country neither appreciate nor understand the law, and those who avail themselves of it are mostly foreigners, natives of India for the most part, and money lenders.

Ajmere. A steady increase of civil suits, out of proportion to its wealth and population, was still remarkable in the administrative statistics of Ajmere, particularly in the Small Cause Courts. This is attributed to increasing confidence in the impartial administration of the law, and is noted as coincident with an unusual amount of prosperity. The courts have a wider jurisdiction than elsewhere, and are largely used by money lenders for registration and execution of bonds against agriculturists, and it is under consideration to contract the area of these courts. Litigation, in the actual meaning of the word, is small. The number of documents registered in Ajmere and Mhairwarra fell off considerably during 1876-7. Compulsory registrations rose from 591 in 1875-6 to 655 in 1876-7; but optional registrations decreased from 623 to 500. Most of these registrations were those of standing crops, and illustrate the incessant struggle between creditors and debtors.

Berar. Litigation increased in Berar, the total number of suits instituted being 21,337 as compared with 19,519 in 1875. The increase was chiefly in suits for money due numbering 18,489, as against 17,093. The chief cause was probably the astute Marwarie and other money lenders coming down upon their Kunbi customers at a time when the latter were reaping large profits on their produce, and were more able to meet liabilities than in a normal season. A system of rural registration, as in force in Bengal, was introduced experimentally into the province in the year under report, and the department was otherwise strengthened by the opening of 5 new offices, and the appointment of 4 additional sub-registrars. There were thus at the close of the year 6 offices of district registrars, 30 sub-registry, and 9 rural offices. The total number of documents registered during the year was 10,802, being an increase of 15·6 per cent. on the work of the preceding year.

Mysore. The total number of suits instituted in Mysore during 1876 was 25,051, being 1 less than in 1875. Their aggregate value was 237,872 *l.* Of the whole number of suits, 62·6 per cent. were filed in the Munsifs' Courts. The number of regular appeals rose from 897 to 1,071, and of special appeals from 89 to 111. Both compulsory and optional registrations increased in 1876-7, the former from 8,130 to 8,780, and the latter from 3,273 to 3,762. The increase in the transactions was greatest under the head of mortgages. The registration facts exemplify the effects of a year of unparalleled distress among the land-holding community, and shew that, where famine and dearth pressed with the greatest severity and intensity, there persons possessing rights in immovable property, pledged them or sold them to meet their own necessities or the demands of Government.

Coorg. In Coorg during 1876 there were 2,022 suits instituted, as against 1,912 in 1875. The value amounted to 25,731 *l.* The total registrations (which are mainly compulsory) rose from 585 to 594.

Madras. There was little change during 1876 in the amount of work in the Madras High Court, but in the subordinate courts of the Presidency 216,484 suits were filed. This figure was the highest for 7 years, and is remarkable considering the prevalent distress. Of 267,630 suits on the files for disposal, no less than 222,465 were disposed of, which is the highest number disposed of in any one year. The rules of the Calcutta High Court for service of process, &c., were introduced during the year and worked satisfactorily. The condition of registration in the Madras Presidency is one of steady advance. The aggregate value of the transactions registered in 1876-7 was 7,835,887, and the total number of registrations was 250,876, as compared with 237,262 (valued at 8,741,577 *l.*) in 1875-6.

Compared with the returns for 1875, the total number of suits instituted in the Civil Courts of the Bombay Presidency shewed a decrease from 178,334 to 177,584. As in previous years, more than 90 per cent. were claims to recover money, about 89 per cent. of these money claims relating to sums of less than 50 *l.* There was a satisfactory fall in the coercive processes employed, and the reduction in the number of imprisonments for debt is very marked, from 12,091 in 1874 to 4,550 in 1876. Efforts to organise private courts of award for the settlement of civil disputes received the attention of Government. This movement is a quasi revival of the old system of settlement by the village council, or *panchâiat*. It began in the Poona district in September 1875, and 8 courts were established by the early part of 1876. These associations, called by their founders *ekyawardak*, or promoters of unity, are generally known as the *lavâd*, or award courts. Rules have been framed. The members are drawn from the class of pleaders, traders, and retired Government servants, and serve as unpaid arbiters in turn a week at a time. Fees are charged to meet court expenses, but these are moderate, and not more than a third of the cost imposed in the ordinary subordinate civil courts. Up to the end of May 1876, when on an average they had been open only three-and-a-half months, in the 8 courts 1,458 suits or about 9 per cent. of the whole civil legislation of the district for the year 1876, had been filed. But the popularity of the courts speedily fell. Compared with 11,092 in the ordinary civil courts, only 610 awards were given in 1876. Among the reasons for failure is the fact that, until they are filed in a civil court, these awards have no legal force, and another difficulty is the want of power to summon witnesses. Government are anxious that the movement should be successful, but feel that it is one with which they cannot interfere. The value of property registered in 1876-7 decreased from 4,647,853 *l.* to 3,653,781 *l.*, the special influence at work during the year being the pressure of the scarcity.

CIVIL JUSTICE. Bombay.

III.

FINANCE.*

Revenue and Expenditure. India.

Some important changes have been effected in the form of the Finance and Revenue Accounts for 1876–7. Provincial receipts and disbursements are now included in the general account; and the mode of exhibiting the revenue and expenditure in regard to productive public works is altered, the former including the whole of the net traffic receipts of the guaranteed railways, and the latter the cost of working and maintenance, interest and surplus profits, but not capital outlay. In the following comparison these changes must be borne in mind. The gross amount of the public revenue of British India rose from 51,310,063 *l.* in 1875–6 to 55,995,785 *l.* in 1876–7. The ordinary revenue was 50,399,411 *l.*, and 5,596,374 *l.* was credited to productive public works. By far the most important source of revenue was land, with 19,857,152 *l.* Next came opium with 9,122,460 *l.*, and salt with 6,304,658 *l.* Then followed stamps 2,838,628 *l.*, excise 2,523,045 *l.*, and customs 2,483,345 *l.* From these six heads the net revenue, after deduction of the cost of collection, was no less than 36,913,361 *l.* The total expenditure (excluding outlay of capital on productive public works) rose from 49,641,118 *l.* in 1875–6 to 58,178,563 *l.* in 1876–7, of which 51,430,673 *l.* was ordinary expenditure; while the expenditure on productive public works, for working expenses and interest, was 6,747,890 *l.* It will be seen that the deficiency of revenue amounted to 2,182,778 *l.*, as compared with the surplus of 1,668,945 *l.* in the previous year. In the decade of financial years ending with 1876–7 there have been four instances of a deficiency; but for the whole period the public revenue and expenditure may be said to have preserved an equilibrium, the surplus of revenue being only 707,479 *l.* Excluding payments in realisation of revenue and capital outlay on productive public works, the principal heads of expenditure in 1876–7 were, army (15,792,112 *l.*), interest on debt (4,512,722 *l.*), public works (3,519,668 *l.*), law and justice (3,275,821 *l.*), loss by exchange on transactions with London (2,181,611 *l.*), police (2,158,032 *l.*), and famine relief (2,145,431 *l.*). This last head almost accounts for the year's deficiency of revenue.

Bengal.

The imperial receipts of the Bengal Government in 1876–7 were 16,006,392 *l.*, shewing an increase of 509,469 *l.* as compared with 1875–6. There was an increase under almost every head except land revenue and customs. Under opium the increase was no less than 252,242 *l.* A decrease of 112,947 *l.* in land revenue for 1876–7 is explained by the fact that the collections in 1875–6 had been swelled by a still larger sum on account of arrears due from the year of famine. The imperial expenditure rose from 6,300,749 *l.* to 6,819,361 *l.*, an increase of 518,612 *l.*, the net imperial receipts being therefore 9,143 *l.* less than in the previous year. Under provincial services the receipts rose from 1,231,314 *l.* in 1875-6 to 1,362,478 *l.* in 1876-7, and the expenditure fell from 2,531,366 *l.* to 1,393,674 *l.*, the year 1875-6 having been heavily weighted with charges on account of famine. In connexion with the imperial budget for 1877–8, the system of provincial finance received further development, to secure a permanent surplus of income over expenditure, in order to meet famine charges, and to enable the Government to pay for unremunerative public works out of ordinary income, and not from borrowed capital. The decentralisation scheme of 1870–1 had resulted both in economy and improved administration. The revenues of the following departments have now been surrendered to the local government, on condition of the payment of a fixed annual contribution to the imperial treasury,—excise, stamps, with law and justice, and portions of the customs, salt, marine, and miscellaneous receipts. Various branches of expenditure hitherto reserved as imperial have also been made over to the

* For details, *see* the Return presented to Parliament of the East India Finance and Revenue Accounts, 1876–7.

local government, with fixed grants. It was also decided to make the local government responsible, not only for the management of any great public works which are being carried on, but also for meeting the charges which these works entail. The various irrigation works and state railways were accordingly transferred to provincial control. As these works evidently could not pay their own expenses, the Provincial Public Works Cess Act (Bengal Act II. of 1877) was passed, under which it is expected that by 1878–9 there will be raised an annual revenue of about 300,000 *l.*, to pay the balance of interest on the capital cost of canals and railways, after deduction of net receipts, and to meet any deficit under the head of provincial services. REVENUE AND EXPENDITURE.

The gross amount of the public revenue in Assam rose from 561,197 *l.* in 1875–6 to 568,405 *l.* in 1876–7, and the expenditure increased from 369,314 *l.* to 380,510 *l.* Assam.

The gross revenue collections in the North-Western Provinces during 1876–7 were 6,186,952 *l.*, as compared with 5,957,492 *l.* in the previous year, while the expenditure advanced from 2,146,256 *l.* to 2,239,594 *l.* The income at the disposal of the local government shewed a balance over the expenditure under their control. The year was financially a success. The state of deficit, which had become chronic, was arrested; and financial equilibrium was secured. There was an increase of income in all the great departments administered by the local government, except the medical, and a decrease in expenditure in all save registration, medical, and postal. N. W. Provinces.

In accordance with the instructions issued to all the local governments, various retrenchments of expenditure were made during 1876–7 in the departments under the Oudh Government, wherever reductions were considered compatible with efficiency. Surplus receipts of 1,119,066 *l.* represent the amount contributed for the year by Oudh to the imperial exchequer. Oudh.

In the Punjab the gross revenue collections rose from 3,749,582 *l.* in 1875–6 to 3,837,599 *l.* in 1876–7, and the expenditure from 1,814,684 *l.* to 1,945,858 *l.* Punjab.

The gross revenue collections in the Central Provinces were 997,749 *l.* in 1875–6, and 1,104,138 *l.* in 1876–7, while the expenditure was 674,609 *l.* and 769,568 *l.* respectively. Central Provinces.

The revenue collections of British Burma in 1876–7 shewed a satisfactory increase under the main heads, the total advancing from 1,746,981 *l.* in 1875–6 to 1,771,743 *l.* In the expenditure, however, there was a rise from 856,721 *l.* to 896,508 *l.*, causing a decline in the surplus revenue from 890,260 *l.* to 875,235 *l.* British Burma.

Both the total revenue and the total expenditure in Berar decreased during 1876–7, as compared with the previous year, the decline in each case being under the head of land. Berar.

A complete derangement of the finances of Mysore during 1876–7 was occasioned by the terrible famine that afflicted the province, and the disbursements (1,250,309 *l.*) largely exceeded the amount of the revenue collections (825,080 *l.*). Mysore.

In Coorg the receipts under all heads of revenue amounted to 76,161 *l.* in 1876–7, as against 66,615 *l.* in 1875–6, while the expenditure also shewed an advance from 65,027 *l.* to 69,577 *l.* Coorg.

The finances of the Madras Presidency during 1876–7 were considerably affected by the unusual failure of rain, the amount of the public revenue falling from 8,360,488 *l.* in 1875–6 to 7,051,137 *l.*, while the expenditure rose from 5,932,041 *l.* to 7,975,787 *l.*; thus, in place of a surplus of 2,428,447 *l.*, there was a deficiency of 924,650 *l.* All the chief heads of revenue shewed a diminution, the decline being most conspicuous under land. Madras.

In the Bombay Presidency the total public revenue for 1876–7 amounted to 10,076,974 *l.*, or more by 330,373 *l.* than the corresponding total for 1875–6. The expenditure under all heads was 8,146,545 *l.*, or more than the previous year by 811,789 *l.* Under receipts a falling-off in land revenue, customs, and stamps was more than met by the increase in opium, salt, and mint. Under expenditure the saving in refunds, minor departments, ecclesiastical allowances, and superannuation was counterbalanced by increased charges under land revenue, forests, customs, and salt. Bombay.

OPIUM AND EXCISE.

Bengal. Opium in Bengal brought in a revenue of 6,174,170 *l.* in 1876-7 as compared with 5,921,928 *l.* in 1875-6, while the cost of production rose from 2,216,758 *l.* to 2,839,832 *l.* The number of chests sold by auction in Calcutta for exportation was 47,240, at an average price of 127 *l.* There was a decrease in the quantity of land engaged for cultivation. The policy of continuing rewards in the form of presents of shawls, &c., to deserving cultivators was under consideration during the year, and it was found that the best authorities were in favour of the system. These rewards are made in accordance with old custom, are appreciated by the people, and stimulate them to the production of better opium. There was a further decline throughout the year in the consumption of opium, except in Orissa, where the increased selling price did not suffice to check the growing consumption of the drug. In 1876-7 the gross excise receipts amounted to 624,781 *l.*, shewing an increase of 15,963 *l.* over the returns of the preceding year. Receipts from country spirits were much larger than in the previous year, owing to the increase in the rate of duty, but this was to a great extent counterbalanced by a decrease under the head of rum, due in part to the importation of cheap brandies, and to the large clearances made early in 1876, in anticipation of the increase in duty. A measure for consolidating the excise law in Bengal was passed during 1876-7 by the local legislature, but was not approved by the Governor General, and an amended bill was under preparation.

Assam. The amount of excise revenue collected in Assam rose from 141,456 *l.* in 1875-6 to 144,637 *l.* in 1876-7.

N. W. Provinces. The excise revenue of the North-Western Provinces is derived from four sources: (1) opium; (2) intoxicating drugs made from hemp and opium, and *tári*, the juice of the date palm; (3) spirits made by the native process of distillation; and (4) spirits (*i.e.*, rum) distilled after the English method. The revenue rose from 223,614 *l.* in 1875-6 to 238,699 *l.* in 1876-7, and a further increase was expected in 1877-8, owing to administrative changes introduced since the close of 1876-7.

Oudh. As compared with 79,102 *l.*, collected in the previous year, the excise collections in Oudh during 1876-7 shewed an advance to 88,349 *l.* The revenue from spirits continued to increase, and was larger in 1876-7 than it had ever been. Opium also, and other intoxicating drugs, yielded an enhanced revenue.

Punjab. Excise receipts in the Punjab advanced from 95,478 *l.* in 1875-6 to 103,868 *l.* in 1876-7, and the charges fell slightly from 5,783 *l.* to 5,772 *l.* The duty on rum was raised from 3 rupees to 4 rupees, notwithstanding which fact, the consumption of the liquor was greatly in excess of that of the previous year. Receipts increased under both the heads of spirits and drugs.

Central Provinces. In the Central Provinces the total revenue collected from excise rose from 135,639 *l.* in 1875-6 to 144,958 *l.* in 1876-7, and it is steadily increasing. The excise on liquor was 61 per cent., and that on opium 23 per cent. of the whole. The revenue suffers from contraband opium passed from Berar into the Nagpur districts. Much of the smuggling would be stopped if Bengal opium were supplied to the Central Provinces.

British Burma. The excise revenue of British Búrma has been steadily increasing since 1871-2. In 1876-7 the total realisations were 171,661 *l.*, against 159,559 *l.* in 1875-6.

Ajmere. Excise receipts in Ajmere increased from 3,901 *l.* to 4,644 *l.* It is very difficult to place this branch of revenue under systematic control, as the facilities for procuring liquor from the Native States and from the private stills of the *istimrardars* are embarrassing. At Nasirabad a monopoly for the sale of opium was farmed out for the year to one contractor; in all other places the sale and possession of the drug is entirely free and unrestricted. During the year the contract leases granted to the *sadr* farmer and retail vendors were revised and improved in several ways, especially in enforcing the responsibility of the farmer for the retail shops, and in preventing the farm from being sublet.

Berar. The excise revenue in the Hyderabad Assigned Districts is derived from (1) the monopoly of sale of country spirits and *tari*, farmed annually at auction; (2) licences granted for the sale of spirits manufactured in the country according to the European method, or imported from abroad; (3) licences granted at

auction for retail sale of drugs, viz., opium and *ganja*. The liquor revenue advanced from 78,585 *l.* in 1875-6 to 84,374 *l.* in 1876-7, and the opium revenue from 15,635 *l.* to 17,450 *l.* As the system of farming out the opium revenue and allowing unrestricted poppy cultivation injuriously affects the imperial system of government supply adopted in the adjoining districts of the Central Provinces and the Bombay Presidency, the Resident has submitted proposals to Government for the adoption of a scheme to check the present extensive smuggling across the Berar border. OPIUM AND EXCISE.

From spirits and drugs the excise in Mysore yielded 116,960 *l.* in 1876-7, as compared with 123,277 *l.* in 1875-6. The decline was under nearly every heading, but much the greatest in the still-head duty on arrack, owing to decreased consumption of liquor throughout the province. Mysore.

An advance from 13.144 *l.* in 1875-6 to 13,583 *l.* in 1876-7 in the excise income of Coorg is attributed to the eager competition maintained among the distillers, to the receipts from the still-head duty having risen from 9,457 *l.* to 10,075 *l.*, and to the high price realised by the sale of retail spirit licences. Coorg.

In the Madras Presidency the total amount of excise revenue collected fell from 633.901 *l.* in 1875-6 to 558,369 *l.* in 1876-7. The annual fixed demand on account of the mofussil portion of the excise revenue, which is leased out triennially, is 526,711 *l.*, against which 517,144 *l.* was realised in 1875-6, but only 442,683 *l.* in 1876-7. This decrease was due to the falling off in the yield of cocoa-nut toddy in consequence of the failure of the usual rains, and also to the impoverished condition of the people. In consideration of their heavy losses many of the renters were allowed time to pay their dues. The revenue realised under the direct management of Government at Madras amounted to 115,686 *l.*, being only 1,071 *l.* less than in 1875-6. Madras.

The total opium revenue collection during 1876-7 in the Bombay Presidency amounted to 2,948,290 *l.*, or an increase of 398,793 *l.* over the corresponding returns in 1875-6, and of about 300,000 *l.* over the average of the preceding five years. Opium smuggling is carried on to a very large extent, as is proved by the fact that, if the holders of licences dealt only in government opium, their receipts would be much less than the amount they pay for their licences. In the town and island of Bombay 16 prosecutions were instituted during 1876-7, against 7 the year before. The excise or *abkári* revenue has two divisions, Bombay and provincial excise. Bombay excise is administered by the Collector of Salt Revenue; provincial excise by the different district collectors. During 1876-7 the revenue from Bombay excise rose from 67,120 *l.* to 73,826 *l.*, and the proceeds of provincial excise from 397,528 *l.* to 428,812 *l.* The increase in Bombay excise was owing to the still-head duty having been raised from 1 rupee to *Rs.* 1. 12. per gallon, in accordance with the desire of the Government of India that the duty on home made and foreign imported spirits should, as far as possible, be assimilated. The tree tax was at the same time raised from 7 rupees to 9 rupees. These measures were followed by a strike both of the Bombay toddy drawers and of the Uran distillers; and no liquor was exported from Uran from 1 August to 22 October 1876. Five distilleries were closed, owing to the heavy losses sustained by the proprietors. Government has appointed a committee to report on the complicated subject of equally taxing the spirits made at Uran and Bombay. The number of gallons which paid still-head duty was only 474,491 as compared with 624,100 in 1875-6, shewing a decrease of 149,609 gallons. Bombay.

Revenue collections from salt in Bengal rose from 2,561,553 *l.* in 1875-6 to 2,596,956 *l.* in 1876-7, owing to enhanced receipts from duty on imported salt cleared for consumption. The abnormally high importations of the previous year caused a decrease in the supply from Great Britain, but the total quantity imported (8,266,990 maunds) was nevertheless in excess of that cleared for consumption (8,107,022 maunds), and the quantity in stock at the close of the year was 4,250,816 maunds, or slightly more than enough for 6 months' consumption of all Bengal. There was a large increase in the manufacture of Pooree salt; but a decline in the amount sold proves that there was no genuine revival of the trade, which has suffered so severely from competition with the cheaper salt from Ganjam. The salt workers of Pooree, owing to SALT. Bengal.

SALT.

the barrenness of the tracts round the Chilka lake, have no other means of subsistence than their peculiar industry, and the manufacturers also were suffering great losses. In order to afford some relief to the Pooree trade, the discount of 5 per cent. allowed in Ganjam to all purchasers of not less than 1,200 maunds has been ordered to be discontinued, and the Pooree manufacturers have been relieved of the cost of the preventive establishment.

N. W. Provinces. The amount of salt revenue collected in the North-Western Provinces during 1875-6 and 1876-7 was 528,510 *l.* and 528,588 *l.* respectively.

Oudh. In Oudh the salt revenue collections fell from 1,487 *l.* in 1875-6 to 1,149 *l.* in 1876-7.

Punjab. The salt revenue in the Punjab increased from 790,518 *l.* in 1875-6 to 830,172 *l.* There was a general increase in the sales at the salt mines; while the receipts on the Delhi line are stated to be the largest on record in that division, and were partly owing to the reduction of railway freight for Sambhar salt, and a consequent increase in the amount brought in by rail.

Central Provinces. So far as concerns the salt revenue of the Central Provinces, the net result was a small decrease, temporary perhaps, and due to the transition from one set of rates of duty to another introduced within the year; but that revenue was realised on a larger consumption by the people. The actual amount of the collection was 19,066 *l.* in 1875-6, and 12,443 *l.* in 1876-7.

British Burma. The amount of salt revenue collected in British Burma fell from 16,032 *l.* in 1875-6, to 14,603 *l.* in 1876-7.

Mysore. Owing to the badness of the season in Mysore, the revenue from salt pans in 1876-7 fell off from 1,149 *l.* to 529 *l.*

Madras. The salt revenue of the Madras Presidency declined from 1,353,789 *l.* in 1875-6, to 1,291,953 *l.* in 1876-7. The decrease was mainly due to the expansion of private trade in salt in Malabar and South Canara, the duty for which is for the most part paid at Bombay. It is also ascribed to the increase of smuggling on the west coast owing to inadequate preventive establishments, and the manufacture of earth salt, the weather having proved unusually favorable for the purpose. It was partly also the result of the prevailing distress, carts which used to take salt from the coast having been engaged in the transport of food grains. The Salt Commission, which was appointed to consider and report on the advisableness of substituting a system of excise for the existing Government monopoly, came to a close, and their report was under the consideration of Government. From 1 July 1877 (the beginning of the revenue year), the excise system has been applied to the districts of Malabar and South Canara, and sales on account of Government have been discontinued.

Bombay. During 1876-7, in the Bombay Presidency, 4 salt works were closed, and no new works opened, leaving 554 works in operation at the close of the year. The chief event of the year was the temporary reintroduction of the system of exportation to Madras without prepayment of duty. This system was in force from 21 August 1876 to 16 March 1877, and did not work well. Accordingly the Government of India rescinded the order. A nominal loss of revenue of nearly 120,000 *l.* was caused by the change. The amount of salt revenue collected rose from 880,441 *l.* in 1875-6, to 930,441 *l.* in 1876-7, an increase of exactly 50,000 *l.* Cases of salt smuggling continued to decline in number, being 909 against 1,118 in the previous year. No serious affrays with smugglers took place.

PANDHRI.

Central Provinces. *Pandhri* assessments in the Central Provinces did not vary much from those of the previous year. The peculiar fact is noted that, although the trade of the Province has greatly developed during the last few years, yet the amount of this tax, which affects principally the trading classes, does not appreciably increase. A careful scrutiny of the assessments has been ordered.

STAMPS.

India. The stamp revenue of British India is derived from the sale of stamps under (1) the General Stamp Act, which prescribes certain stamps for mercantile and other documents; and (2) the Court Fees Act, which prescribes stamps to be used in litigation. The total amount of stamp revenue collected in British India rose from 2,835,368 *l.* in 1875-6, to 2,838,628 *l.* in 1876-7.

Bengal. The amount of stamp revenue collected in Bengal was 935,019 *l.* in 1875-6,

and 954,788 *l.* in 1876-7, but in the latter year there was a slight decrease in the duties received under the General Stamp Act, from which it is inferred that these duties are systematically evaded. Necessity for greater vigilance was impressed on the revenue authorities, more especially as the stamp receipts have been made a part of the provincial revenues. STAMPS.

The stamp revenue collected in Assam declined from 51,572 *l.* in 1875 6, to 49,682 *l.* in 1876-7. Assam.

In the North-Western Provinces the collections rose from 354,179 *l.* in 1875-6 to 367,932 *l.* in 1876-7. The increased use of money orders and currency notes has caused a decline in the number and value of bill of exchange stamps during several years. The penal sections of the General Stamp Act were sparingly used during 1876-7, only 112 prosecutions following 291 cases of evasion brought to the notice of the collectors. N. W. Provinces.

The gross revenue in Oudh from stamps in 1876-7 was 94,372 *l.*, against 94,042 *l.*, in 1875-6. A decline which had occurred for several years in the use of certain stamps was arrested. The principal cause of this decline has been the extensive evasion of the stamp law, and the execution of many unstamped or insufficiently stamped documents. Prosecutions for breaches of the stamp law increased; of 211 persons tried, 163 were convicted. Oudh.

In the Punjab the income from stamps declined from 247,293 *l.* in 1875-6 to 245,586 *l.*, in 1876-7. The decrease was in the sale of non-judicial stamps, of which the sales were exceptionally large in 1875-6, owing to the fact that the renewal and conversion of old bonds take place to a larger extent than usual every 3 or 4 years to save the period of limitation. Punjab.

The stamp revenue in the Central Provinces has been almost stationary for some years. Collections in 1875-6 and 1876-7 amounted respectively to 97,261 *l.* and 97,614 *l.* Central Provinces.

In British Burma the stamp revenue collections declined from 63,495 *l.* in 1875-6 to 62,992 *l.* in 1876-7. British Burma.

Realisations under stamps in Mysore for 1876-7 amounted to 50,725 *l.* against 56,457 *l.*, the decrease occurring under every head, but chiefly in the receipts from court fee stamps. Mysore.

A slight increase from 2,339 *l.* in 1875-6 to 2,430 in 1876-7 occurred in the stamp revenue of Coorg. Coorg.

Collections from stamps in the Madras Presidency were higher in 1875-6 than they had ever been before. In 1876-7 they fell slightly from 501,971 *l.* to 499,336 *l.*, owing chiefly to the decrease of litigation consequent on the scarcity everywhere prevalent. Madras.

The largest amount that was ever collected from stamps in the Bombay Presidency was in 1872-3, when the revenue reached 527,383 *l.* In 1875-6 and 1876-7 the amounts were respectively 466,986 *l.* and 440,066 *l.* The reduction was almost entirely in the receipts under the Court Fees Act, and was due to diminished litigation. Bombay.

The District Road Cess Act (X. of 1871) has been extended to 40 out of the 43 districts of Bengal, the 3 exceptions being the Chittagong Hill tracts, the Sonthal Pergunnahs, and Singbhoom, where there are special local reasons which render the introduction of the measure undesirable. Returns for the year ending 30 September 1877 shew that out of the 40 other districts the cess was not levied in three, namely, Darjeeling, Chittagong, and Lohardugga, where the valuations had not been completed when the year closed. The rate of cess was not uniform in all districts; in two it was three-fourths of the maximum rate fixed by law; in seven it was half; and in the remaining 28 districts the full or maximum rate of half an anna in the rupee was levied. Collections were begun for the first time in 11 districts. As regards the road cess on lands and mines, 92·4 per cent. of the total arrears was collected; but the same cannot be said of the realisation of the current year's demand (286,551 *l.*), the percentage of collections being at 87·4 (250,491 *l.*). In 11 districts the collections attained the standard of 95 per cent. laid down by the Government of India. In nine districts they were between 90 and 95 per cent.; while the worst collections were in Sarun (55·8), Backergunge (63·8), and Noakholly (75·3). The unfavourable result in Sarun was due to the collections not being begun till May 1877, coupled with a failure of crops. Of BENGAL ROAD CESS.

BENGAL ROAD CESS.

Backergunge the case was peculiar; the demand was the largest in all Bengal, but owing to the cyclone and storm wave of 31 October 1876, the collection of the cess was postponed in some parts of the district. In Noakholly the short collections were due to the same exceptional causes. In the case of the other districts, where the results were unfavorable, it is explained that the coercive measures provided by the law were not sufficiently stringent, and are tedious in their operation; so that when a zemindar neglects to pay he takes a long time to realise the amount due from him. Endeavours were to be made to get the cess in future paid simultaneously with the land revenue. The collections of the cess on houses shewed an improvement over the previous year's, but were still far from satisfactory, only 14,068 *l.* being collected out of a demand of 19,410 *l.*, giving a percentage of 72·4 against 60·7 in 1875-6. In seven districts the percentage was over 95, and in seven others between 95 and 90, but very unfavorable results were reached in several districts, the worst being Sarun, which yielded only 2·3 per cent.; Noakholly, 18·3; and Rungpore, 18·6. Owing to the cyclone the levy of the cess was suspended in Backergunge.

IV.

LAND ADMINISTRATION.

GREAT TRIGONOMETRICAL SURVEY.

DURING 1876-7, the outturn of the work of the Great Trigonometrical Survey* of India was the following:—*Principal Triangulation.*—Sixty-seven triangles were measured, fixing 53 new stations and covering an area of 5,019 square miles; astronomical azimuths of verification were measured at 2 of the principal stations. *Secondary Triangulation.*—An area of 5,400 square miles was closely covered with points for the topographical survey; an area of 3,100 was operated in *pari passu* with the principal triangulation, and in an area of about 23,600 square miles, lying mostly in portions of the Himalayas which are inaccessible to Europeans, a number of points were fixed which will be valuable for geographical rectifications. *Topography.*—Areas of 959 and 640 square miles were completed, on the respective scales of half-an-inch and 1 inch to the mile, in the British portions of the higher Himalayas; and an area of 3,704 square miles was completed on the 2-inch scale in Kutch and Gujarát of the Bombay Presidency. *Geodetic Operations.*—The amplitudes of 3 arcs of parallel, between trigonometrical stations in Southern India, were determined by the electro-telegraphic method; and the differences of longitude between Bombay, Aden, and Suez were also determined in the same manner. *Geographical Explorations.*—Much valuable work was done on the unsurveyed portion of the River Indus, and in and around the Kohistan which contains the sources of the Swat and Panjkora rivers.

TOPOGRAPHICAL SURVEYS.

Besides the topographical work executed by the Great Trigonometrical Survey* Department, as above mentioned, topographical survey operations under the Government of India during the professional season 1876-7 were carried out by field parties in Gwalior and Central India; in Khandesh, Kattywar, and Gujarát; in the Central Provinces and the Vizagapatam Agency; in the North-East Division of the Central Provinces; in Bhopal and Malwa; in the Khási, Gáro, and Nága Hills; in Rajputana; and in Mysore. As compared with 1875-6, the total outturn of work decreased from 19,188 to 18,909 square miles of final topography, and from 29,242 to 22,119 square miles of triangulation in advance. A completion was made during the year of the survey in the Central Provinces and Vizagapatam Agency, and in the North-East Division of the Central Provinces. Work on the important Mysore survey (the cost of which is defrayed from the provincial funds) was much impeded by the famine, and unless the strength of the surveying party is considerably augmented, many years must elapse before the survey can be finished. Present financial economies are a great bar to rapid progress in connexion with the entire first survey of India, the completion of which is a question merely of time and money. Up to the close of the season 1876-7 the aggregate results of the topographical and revenue surveys gave a grand area of 898,206 square miles surveyed out of the 1,481,866 square miles that form the area of British India. There remained for topographical survey the following areas, in square miles: Gwalior and Central India, 7,000; Khandesh, 4,800; Kattywar, 4,300; Gujarát, 25,800; Bhopal and Malwa, 9,000; Khási, Gáro, and Nága Hills, 10,000; Rajputana, 54,500; and Mysore, 22,000.

REVENUE SURVEYS. India.

Revenue survey* operations under the Government of India during 1876-7 were larger than in the previous year, the total number of square miles surveyed rising from 11,175 to 12,544. The various parties were engaged in the Soane Canal area and Pooree district, in Bánda, in Moradabad, in Budaun, in the Deraját, Rohtak, and Sirsa districts, and the *Diáras* (or alluvial lands) of the Ganges and Brahmaputra rivers, in the Deccan, and in Midnapore, while some special work was done in Chota Nagpore and Assam. The total outturn of the year (omitting the Assam survey) was as follows: 845 square miles on the cadastral 32-inch, 904 on the cadastral 16-inch, 5,424 on the 4-inch, 4,072 on the 2-inch, and 1,299 on the 1-inch scale.

Bengal.

The approximate return of field work executed by the professional revenue

* For fuller information *see* the last Annual Abstract of the Indian Surveys.

REVENUE SURVEYS.

survey parties in the Lower Provinces during the season ended 30 September 1877 was 4,145 square miles, at an average cost of nearly 11 *l.* Non-professional parties demarcated 50 villages in the Midnapore district, and 813 in the Pooree district, and some progress was made in the compilation of the survey registers of the Hooghly district.

Assam.

In Assam very little revenue survey work was done during 1876-7, the operations consisting of the demarcation and boundary survey of estates and holdings in the district of Kámrúp.

N. W. Provinces.

Cadastral survey operations on the 16-inch scale in the North-Western Provinces advanced rapidly towards completion in districts under revision; 738 square miles were surveyed during the season, leaving only 1,094 square miles in the Bánda district to be completed. A survey of the permanently settled districts and the preparation of new records have long been rendered necessary by the notorious inaccuracy of the old maps and village papers, and a cadastral survey of the districts has accordingly been sanctioned. The work was to be begun in Jaunpur.

Punjab.

Detailed village surveys in the Punjab were carried out during 1876-7 over an area of 3,141 square miles, bringing up the total area surveyed for revenue purposes to 115,957 square miles.

Mysore.

The outturn of revenue survey operations in Mysore for the year ending 31 October 1876 was 1,017,015 acres, an increase of 83,122 acres over the work of the preceding year. The length of boundary settled was 124 miles, against 87 the year before. The lands of 181 *inam* villages containing 89,047 acres were measured, as against 53 villages comprising 76,799 acres the previous season. From the beginning of survey operations in 1863-4 to the close of the survey year ending 31 October 1876, the area measured was 10,939,928 acres, the area classed 8,319,846 acres, and total cost of survey was 244,712 *l.*

Coorg.

In Coorg boundary surveys of the State forests and the villages were completed during 1876-7.

Madras.

The work done by the Madras Survey Department during 1876-7 consisted of 967 square miles of field demarcation, 1,637 square miles of field survey, 3,198 square miles of boundary demarcation, and 4,853 square miles of boundary survey, besides much miscellaneous work. At the close of the year there still remained 12,681 square miles of village survey, and 31,473 square miles of topographical survey, to complete those districts of the Presidency remaining to be surveyed.

Bombay.

The wide-spread scarcity and distress in the Bombay Presidency during 1876-7 interfered much with revenue survey operations, the outturn of which was 1,783,740 acres measured, and 1,798,511 acres classed. The actual work of the Kurrachee city survey of the previous year was completed in 1876-7, and special surveys were in progress at Ahmedábad, Hubli, and Dhárwár.

STATISTICAL SURVEY.

Up to May last the statistical survey* had been completed for four-fifths of British India, and 78 volumes of statistical accounts, aggregating 25,440 pages, had been printed. The accounts remaining to be compiled related to districts in the North-Western Provinces, Bombay, and Madras. The "Imperial Gazetteer" of India will be the condensation and fruit of the entire series of statistical surveys.

LAND REVENUE AND SETTLEMENTS. India.

According to the Finance and Revenue Accounts the total amount of land revenue collected in British India during the 3 years, 1874-5, 1875-6, and 1876-7, was respectively 21,296,793 *l.*, 21,503,742 *l.*, and 19,857,152 *l.* The decrease in 1876-7 was entirely due to the prevailing scarcity.

Bengal.

The total number of settlements effected in Bengal, exclusive of the Sonthal Pergunnahs, during 1876-7 was 845, of which 67 were original, 340 resettlements, and 438 summary settlements. The net increase of Government revenue amounted to 6,832 *l.* The principal settlements were in the district of Chittagong, Pooree, Midnapore, and Backergunge. In the Sonthal Pergunnahs the settlement operations have been going on throughout the year, but on 30 June 1877 there were 942 villages remaining for settlement. The work was expected to be finished during the field season of 1877-8. The settlement is sure to be a boon to the ryots, looking to the manner in which landlords and

* *See* note on previous page.

farmers, both Native and European, were wont to run up the rents on short leases, and to exact illegal cesses. It will also benefit the zemindars by giving them an assured income, and preventing their lands from being handed over to money-lenders. The prosperity of the year was marred by one great calamity, the cyclone which ravaged the south-eastern districts of Bengal on 31 October 1876. This necessitated suspensions of land revenue to a considerable amount, and also put a stop to settlement operations in the localities affected. The current land revenue demand rose from 3,455,593 *l.* to 3,672,734 *l.*, of which 95·35 per cent. was collected. The amount of land revenue collected in Bengal was 3,645,725 *l.* in 1874–5, 3,776,506 *l.* in 1875–6, and 3,663,559 *l.* in 1876-7. LAND REVENUE AND SETTLEMENTS.

In Assam the land revenue collections declined from 337,358 *l.* in 1875-6 to 329,637 *l.* in 1876–7. There was an increase in the current land revenue demand, but only 94·94 per cent. was collected; while there was a decline under miscellaneous land revenue. Various settlement and resettlement operations were conducted in the more populous districts. Assam.

For the revenue year ending 30 September 1876, the land revenue collections in the North-Western Provinces advanced from 4,245,745 *l.* to 4,298,908 *l.*, while the assessments declared within the year showed an increase. The land revenue was collected with ease; arrears were small and unimportant. The new system of village records, which was introduced tentatively in 1875–6 in some of the lately resettled districts, was extended during 1876-7 to all temporarily settled districts. Great progress was made in the few remaining settlements. At the close of the revenue year ending 30 June 1876, the net increase of assessments was 444,499 *l.* N. W. Provinces.

Settlement operations in Oudh were expected to be concluded by the end of 1877–8. During 1876–7, the chief amount of work done was in the Kheri and Fyzabad districts. The revenue collections fell from 1,407,437 *l.* in 1875-6 to 1,403,843 *l.* in 1876-7. Of the total demand 99 per cent. was collected. There was no undue amount of coercion, and resort to the extreme measure of sale for the recovery of arrears was unavoidable in the case of only 4 estates. The entire revenue law is now contained in the Oudh Land Revenue Act (XVII. of 1876), an enactment which will doubtless greatly facilitate revenue business. Landholders in Oudh continued to take little advantage of the provisions of the Land Improvement Act, the amount of the advances during 1876-7 being only 3,138 *l.* Oudh.

In the Punjab the Pesháwar settlement was finished during the year, and the final orders of Government were passed about the close of 1876 7 on 6 settlement reports, including Pesháwar. The settlements of 11 districts were under progress. The regular land revenue demand increased slightly, and 99 per cent. was collected. The amount of the collections was 2,001,117 *l.* in 1875-6, and 2,005,814 *l.* in 1876–7. Destructive floods rendered collections in the Pesháwar district unfavorable, and in Gurgáon the lands inundated by the excessive rain of 1875 remained submerged. The total area of land in the Punjab and its dependencies at the close of 1876–7, of which the revenue was assigned to individuals and institutions, was 5,237,971 acres, with an annual revenue of 298,038 *l.*, divided among 150,076 holders. Punjab.

The land revenue of the Central Provinces was collected easily and punctually, and few coercive processes were required, owing to the moderation of the demand and the prosperous condition of the agricultural classes. In 1875–6 the amount of the collections was 607,885 *l.*, and in 1876–7 it was 604,419 *l.* Village papers are now beginning to be filed with fair regularity, but much remains to be done before they can be considered trustworthy, as shewing the changes of cultivating occupancy from year to year, and the fluctuations in the areas devoted to different crops. Central Provinces.

Less than one-fifth of the land in British Burma in 1876–7 was under settlements, none of which were for a longer period than 10 years. The remainder is annually measured and assessed by revenue officials styled *thoogyees*, in whose work, however, gross errors and defects are year after year discovered by the Local Survey Department. It is computed that correct measurements of the cultivated area of the province would increase the revenue by at least 25 per cent., without any enhancement of the present rates of assessment. The operations of the Survey Department during 1875-6 and 1876-7 were confined to the Rangoon district, where the measurement of 15 circles effected an increase of 39,572 acres in area, and 9,179 *l.* in revenue. The amount of land revenue British Burma.

LAND REVENUE AND SETTLEMENTS.

collected has risen from 728,425 *l.* in 1874-5 to 823,655 *l.* in 1875-6, and 835,376 *l.* in 1876-7.

Ajmere.

The land revenue of Ajmere was easily collected without pressure or coercion, and the balance due was insignificant, which speaks highly for the moderation of the settlement. In 1876-7 the amount collected was 32,987 *l.*, as compared with 33,052 *l.* in 1875-6.

Berar.

During 1876-7 the Survey Department completed the settlement of 712 and the classification of 29 villages in the Hyderabad Assigned Districts. The whole province of Berar, with the exception of the wild hilly tract of the Melghat, has now been mea ured, classified, and assessed under the Bombay Survey Settlement rules. Immense advantage has been secured thereby to the revenue without hardship to the people. Since the introduction of the survey in 1860-61 there has been an annual enhancement of revenue to the extent of 151,200 *l.*, at a total expenditure of 215,208 *l.*, representing a return of 70 per cent. on the outlay. The increase of revenue has been mainly the result of new land being taken up, and of measurement detecting unlawful cultivation, *i.e.*, a man would be found paying rent to the State on a holding entered in the old Native records as 50 acres, which turned out on measurement to be 150. The demand for land continues on all sides. The net land revenue demand in 1876-7 was 525,434 *l.*, as against 526,086 *l.* in 1875-6, and the easy incidence of the assessment is proved by the small number, 187, of coercive processes in regard to the collection of only 448 *l.*, and by the fact that landholders frequently prefer to pay the whole demand when the first instalment falls due.

Mysore.

The total demand on account of land revenue in Mysore during 1876-7 was 643,569 *l.*, as against 737,822 *l.* of the previous year, the falling off arising mainly from large remissions in consequence of the failure of crops.

Coorg.

In Coorg the land revenue demand rose from 36,155 *l.* in 1875-6 to 39,149 *l.* in 1876-7. Under the head of land assessment there was a decrease, owing to remissions granted on account of failure of crops; but a considerable increase occurred under the head of coffee assessment, chiefly due to excess in area in some of the old plantations which was brought to book by the Survey Department, and to many acres of land which became subject to payment of the higher rates of assessment.

Madras.

The collections of land revenue in the Madras Presidency for the official year 1876-7 are returned at 3,296,575 *l.*, shewing a decrease of 1,248,438 *l.* below those of the previous year. Large remissions of ryotwar revenue were rendered necessary on account of decrease of cultivation and failure of crops. The ryots were further very slow in making payment of Government dues in the hope of getting remissions at the settlement which took place in most cases after the close of the year. There was also great difficulty in realising from *zemindars* and *inamdars* the Government dues, as, owing to the adverse season, they were not able to realise the rents due by their ryots. As a rule, however, no remissions were granted out of the permanently settled demand. Considering the adverse nature of the season, the collection of revenue during the twelve months ending 30 September 1876, was very satisfactory; but collectors had to resort to coercive processes to a much greater extent than in the preceding twelve months, the number of defaulters having risen from 336,226 to 1,242,772, and the amount of arrears from 306,947 *l.* (6·59 per cent. of the demand) to 833,236 *l.* (19·04 per cent. of the demand). The value of the property actually attached, however, did not increase proportionately, being only 194,700 *l.* as compared with 167,009 *l.* in the previous year.

Bombay.

For the official year ending 31 March 1877 the amount of land revenue collected in the Bombay Presidency was 3,344,664 *l.*, as compared with 3,690,354 *l.* in 1875-6. During 1876-7 two influences were at work tending to increase the land revenue for collection. These were, the larger area taken up for cultivation, and the introduction of new revenue settlements at higher rates. The total land revenue for collection rose from 3,651,349 *l.* in 1875-6 to 3,715,386 *l.* in 1876-7; but the want of rain and failure of crops interfered so much with the work of collection, that at the close of the year (31 July 1877) the total realised was only 2,672,301 *l.*, or less by 274,304 *l.* than that collected in the previous year, thus leaving a large outstanding balance of 319,341 *l.* to be recovered, of which it was hoped that a very small portion would have to be finally remitted.

There was little open display of animosity during 1876-7 in Bengal between landlords and tenants, and it was not necessary in any case to have recourse to the special procedure of the Agrarian Disputes Act. In some districts there was indication that the landlords and tenants, who have been at variance for years, are now coming to terms and making mutual concessions. But latent animosity will occasionally break out in acts of violence and outrage. Two aggravated cases of the murder of zemindars by ryots occurred during the year, one in Furreedpore and one in Midnapore. As the real grievance lay in the technicality and dilatoriness of the procedure under the existing law, a measure was in contemplation to facilitate the realisation of rents by a more speedy and summary procedure. In some of the districts of Northern Behar the relations between landlords and tenants are by no means cordial. Zemindars complain that ryots do not pay their rents, and that they are unable to enforce decrees; while ryots complain of illegal distraints, oppression, enhancements, and summary ejectments. The combined influence of zemindars and *ticcadars* (or middlemen) has ground the ryots of some parts of Behar down to a state of extreme depression and misery. Most of the ryots do in fact possess rights of occupancy, but are unable to produce legal proof. But there are signs that the ryots are beginning to understand better their legal rights, and are learning to resist illegal attempts at distraint. Moreover, the tenants of small proprietors see that in the great Durbhunga estate the position of the cultivators is being improved, defined, and settled, and this encourages them to demand more equal treatment. Indigo-planters have already intimated their readiness to pay better rates. There are in Behar many intelligent and wealthy landholders, and it would be to their advantage to establish permanent occupancy rights and security of tenure on their estates, and to check at once the system of treating the cultivators of the soil as mere squatters, liable to eviction, and to be rackrented at the whim of the proprietor. Nothing can tend so much to the prosperity of an estate as a well-to-do and contented tenantry, having a permanent interest in the soil. Before taking any steps to regulate by law the system of indigo cultivation in Behar, the Bengal Government are waiting the result of the measures of reform initiated by the planters. The downfall of the indigo industry in Behar would be a public calamity, and there is no doubt that it may, by judicious modifications, and a fairer distribution of profits, be carried on without friction, and to the advantage of all concerned. Considerable reforms have already been in some quarters introduced and attended with most beneficial results. Under the new Land Registration Act (VII of 1876), which in August 1876 became law, 7,618 mutation cases were decided, and it was confidently hoped that the maintenance of a complete and authoritative register of lands, with the names and shares of the actual possessors, would be a great convenience to Government, landed proprietors, and all classes of subordinate holders and ryots. Sales of estates and shares of revenue took place in the case of about a tenth of the number which became liable to be sold under Act XI of 1859; the only district in which the sales were numerous was Chittagong, which has headed the list for many years. Subdivision of property by means of the partition law is proceeding at a rapid rate in Behar; in two of the districts, Mozufferpore and Durbhunga, the number of estates on the revenue roll has trebled within 25 years.

LAND TENURE. Bengal.

Compared with the transactions of 1875-6, there was a considerable increase during 1876-7 in the recorded transfers of land in the Punjab. Transfers by voluntary sale or gift rose from 7,818 to 10,165; transfers by compulsory sale from 485 to 512; and transfers by inheritance from 55,307 to 70,454. Much of the apparent increase of sales of land is due to the sales of previous years having been brought on record in 1876-7, when mutation of names was effected, the increase being almost entirely confined to transactions among agriculturists. At the close of 1875-6 the area of land held in mortgage was 1,591,956 acres; 208,782 acres were mortgaged in 1876-7, while the redemptions during the year amounted to only 43,227 acres. Thus at the close of 1876-7 there were 1,757,511 acres held in mortgage; but much of the increase is only apparent, from the same cause as that assigned for the increase of sales.

Punjab.

The amount of advances made under the Land Improvement Act fell from 12,037 *l.* in 1875-6, to 9,709 *l.* in 1876-7. In a province of small proprietors, where there is so much waste land available for cultivation, a system of Government loans for wells and watercourses ought to be more successful than it is.

During 1876-7 exceptional action was taken by the Madras Government

Madras.

LAND TENURE.

under the Land Improvement Act. Early in the year, and before the pressure of famine became severe, the Government, in consequence of financial difficulties, were unable to sanction large advances under the Act, no budget provision having been made for the purpose. But in January 1877, in order to facilitate the making of advances for digging wells, the Collectors in certain districts were authorised to make advances to landlords, not exceeding in any one case 30 *l.*, on their executing agreements in a simple form acknowledging receipt of the money, agreeing to repay it by instalments within a limited time, and mortgaging to Government as collateral security the lands to be improved by the wells. With a view to greater simplicity, various modifications of the rules were adopted. The ordinary advances amounted to 443 *l.*, while those debited to the famine account were 4,454 *l.*

Bombay.

In the last Statement mention was made of the disturbances which took place in May 1875 in certain villages of the Poona and Ahmednagar districts, in the Bombay Presidency, and of the fact of a commission of inquiry having been appointed. It appears from the Report* of the Commission that the disturbances in question arose out of the relations of the agricultural and money-lending classes, and that the immediate cause was the refusal of the latter to advance the second instalment of revenue, when it fell due, of land, the produce of which they had received from their debtors. The object of the ryots was to destroy the bonds, law processes, &c., in the possession of the money lenders. These were in some cases given up quietly; when they could not be so obtained, the houses were forcibly entered, and the money lenders occasionally roughly treated; but in no case was life taken. To the causes of these unhappy relations between the two classes, and of the extreme indebtedness of the ryot, which led to the refusal of the money lender to make further advances, the inquiries of the Commission were specially directed. With regard to the condition of the ryot when British rule began, it appears that though the burden of debt was considerable, and though many of the ryots lived in dependence upon the money lenders, the amount of individual debt was small, because the ryot's property did not offer security for large amounts. Moreover, under the native governments the creditor received little or no assistance towards the recovery of debt, but had great licence in private methods of compulsion. The first important change under our rule which affected the question of indebtedness was the establishment of civil courts for the recovery of debt. The facilities they afforded for this purpose had the effect of expanding the ryot's credit, in the opinion of Sir George Wingate, an eminent settlement officer, "to a most "hurtful extent," and of bringing into existence a host of low-class money lenders, whose dealings were most pernicious to the community. "The aid given "by the courts," said Mr. Inverarity in 1858, "is all on the side of the "Marwari, who alone knows how to turn that aid to his own advantage. The "position of the litigants is not, therefore, simply of debtor and creditor, it is "the fraudulent Marwari, backed by civil courts, versus the helpless ryot, "signing any bond without even a true knowledge of its contents, and powerless "to oppose any decree that may be passed." It was hoped that the permanent title conferred by the survey settlement and a light assessment would increase the well-being of the ryot, and enable him to free himself from debt, but the contrary has been the case. These two measures led to a too sudden extension of cultivation, which demanded the borrowing of capital for its accomplishment, and landed the ryot in deeper indebtedness than before. Our revenue system again, demanding as it does an unvarying amount, whether the season be good or bad, has an important bearing upon the ryot's necessities. No less mischievous than the foregoing has been the operation of the Statute of Limitations (1859), which, "made for the purpose of protecting obligors, is practically "an engine of extortion in the hands of obligees." An increase of population, coupled with a stationary return from the land, and the reaction which followed the temporary inflation of credit during the American war, complete the list of causes of indebtedness which are of recent growth, and, with the exception of the last, associated more or less with our laws and administration. To them must be added four causes of indebtedness, which appear to have existed from the earliest times, and are unconnected with our rule, namely, (1) the poverty of the ryot, associated with an unproductive soil, precarious climate, and irregularity in the receipts of income, both as to period and value; (2) his ignorance,

* Presented to Parliament.

and his readiness to seek present relief at the cost of future embarrassment; (3) extravagance in the shape of marriage ceremonies, though on this point the Commission are of opinion that the sums expended are not excessive; (4) ancestral debt, which the Commission regard as the chief cause of the present indebtedness of the ryot. LAND TENURE.

There were no sales of waste lands in Bengal during 1876-7, but there was an increased demand in the Dooars for leases both of tea lands and of lands intended to be brought under ordinary cultivation. A grant of 800 acres of land for tea cultivation was also made in the province of Chota Nagpore. WASTE LANDS. Bengal.

An important alteration was introduced during 1876-7 in the system of the disposal of Government waste lands in Assam. Sale in fee-simple with a revenue-free title was abolished, and in its stead was substituted a perpetual lease, giving a permanent, heritable, and transferable right of use and occupancy in the land leased, subject to the payment of land revenue and local taxes and cesses. For the first 30 years of the lease especially favorable rates of assessment are allowed. These leases were primarily intended for the encouragement of tea or coffee cultivation; but permission can be granted by the district authorities for the use of the land for other purposes. Under the fee simple rates in 1875-6 the number of applications granted was 29, and the area of waste land sold was 17,065 acres; but under the new lease rules in 1876-7, the number of applications granted was 63, and the area leased was 24,444 acres. In addition, 268 applications for an area comprising 164,623 acres, remained undisposed of at the close of the year. It is plain, therefore, that the abolition of sale in fee-simple has been no obstacle to the extension of the tea industry. The total demand on account of the price of the new leases and the royalty on timber amounted to 3,296 *l.*, of which 3,066 *l.* was realised during the year. At the close of 1876-7, there remained 84 leasehold grants under the old Assam rules, with an area of 89,141 acres, held on their original conditions. In the districts of Cachar and Sylhet a system of granting leases on favorable terms, with progressive assessments, for 20 years, known as *jangalburi* or waste land reclamation leases, had been already in vogue as the ordinary procedure for bringing new lands into cultivation, and 28 of these leases for 24,580 acres were issued to tea planters during 1876-7, as compared with 30 leases for 11,544 acres in 1875-6. Abolition of these *jangalbari* leases was in contemplation, as the Government of India had signified its desire that a uniform system of leasing waste lands should prevail throughout the province. Land is also taken up in Assam Proper for tea cultivation on the ordinary terms of annual settlement; 12,458 acres were taken up during 1876-7 at full settlement rates, while 80 acres were granted for special reasons at reduced rates, as compared with 5,596 acres at full rates, and 3,571 acres at reduced rates during 1875-6. Assam.

Under the head of waste lands the only transaction in the North-Western Provinces during 1876-7, was the sale of a narrow strip of land between Naugaon and Barowla, which was not required by the Forest Department, as it is surrounded by village lands. The land and the trees were sold by auction for 194 *l.* N. W. Provinces.

No waste lands were sold during the year in Oudh. The balance due to Government in respect of sales effected in previous years was 3,759 *l.*, for the realisation of which measures were in progress. Oudh.

Orders suspending the sale of waste lands on fee-simple rules continued in force during 1876 in the Central Provinces. The scheme for colonising the Charwa waste lands still engaged the attention of the Chief Commissioner. Subsidiary rules were issued; and it was hoped that progress would shortly be made towards establishing the first villages under the colonisation scheme. Central Provinces.

In British Burma no more grants of waste land under the rules of 1865 were made during 1876-7, but under the local revenue rules small grants for the purposes of rice and garden cultivation were made to the extent of 21,933 acres in the Pegu division, and 4,746 in the Tenasserim division, with exemption from revenue for periods varying from one to 12 years. Little was done in the matter of resurveying waste land grants in the Rangoon district, there being no special officer and establishment for the purpose. No grants were resumed by Government during the year. British Burma.

WASTE LANDS.

Berar. In Berar 18 villages in the Melghat, comprising an area of 17,926 acres, were leased out during 1876-7 at an annual rental of 43 *l.* No new leases were taken out in other parts of the province, notwithstanding that the sales recently sanctioned by the Government of India permit of this on terms very favorable to the lessees. Twenty-three leased villages held under the old rules in the Wun district, and three in the Basim district, were resigned, leaving in these two districts an aggregate of 437 villages of this class, with an area, according to recent measurements, of 518,271 acres.

Mysore. The extent of waste land taken up for cultivation in Mysore during 1876-7, was 177,551 acres, and 700 acres were taken up for building sites, while the land resigned amounted to 83,595 acres. At the close of the year the available extent of culturable waste was 2,710,376 acres.

Coorg. During 1876-7, in Coorg, 1,075 acres of waste land were reclaimed for cultivation, while 78 acres of cultivated land were relinquished.

Bombay. Excluding two districts in the Konkan division, and two in the Sind division, for which the figures were not complete or not available, the returns for the whole Bombay Presidency shew that there was on 30 June 1876 a total area of 4,590,996 acres of arable unoccupied land, which was reduced to 4,538,223 acres on 30 June 1877.

GOVERNMENT AND WARDS' ESTATES.

Bengal. The total number of Government estates in Bengal on the revenue roll during 1876-7 was 2,459, and the current revenue demand was 202,053 *l.* Though Government consider that the realisation of revenue might reasonably be expected to amount to 90 per cent. of the demand, yet this standard was reached in only 9 districts, and in 9 others the collections fell below 50 per cent.; these unfavorable results are attributed mainly to want of care and vigilance on the part of the officers concerned. No less than 8,241 estates belonging to private persons were under the direct management of district officers. The charges amounted to only 6·3 per cent. of the collections. The figures for 1876-7 have not been received regarding Wards' estates, of which there were 464 under the charge of the revenue authorities during the previous year. By far the largest estate is the Durbhunga estate in Behar, which came under the Court of Wards in 1860, with very heavy debts and in much disorder. These debts have long been paid off, and at the close of 1875-6 there was an invested balance of 187,858 *l.* The scarcity that was apprehended in consequence of the deficient rainfall at the end of the year necessitated the organisation of relief works and large remissions of revenue. The administration of this estate during the year was marked with extreme leniency to the tenantry. A considerable share in the management was taken by the Máhárája, who will come of age in September 1879.

Assam. In Assam 3 Wards' estates were under Government management during 1876-7.

N. W. Provinces. Besides various other properties, there were at the beginning of 1876-7 in the proprietary possession of the Government of the North-Western Provinces 111 revenue-paying *mahals* or shares in *mahals*, the annual revenue of which was 2,189 *l.* Three of these properties were disposed of during the year. During 1875-6 in the North-Western Provinces 90 estates were under the management of the Court of Wards, the operations of which shew a tendency steadily to increase. The percentage of cost of management was only 4·53 on the ordinary income. The primary object of the court is the charge of estates of persons incapable from age, sex, or otherwise, of managing their property to advantage. Of the 96 proprietors, 72 were thus incapacitated. The remaining proprietors were "disqualified" by thriftless expenditure and extravagance. The Court's attention has been directed to the wise policy of expending accumulated savings in the permanent improvement of the estates by means of wells, tanks, and similar works, rather than to the plan of investing the savings in such a way as to afford facilities for reckless squandering when the court's supervision has ceased.

Oudh. Of the various properties in Oudh under Government management in 1876-7, 177 belonged to the State, 47 were encumbered estates held under the provisions of Act XXIV of 1870, 24 belonged to wards of court, and 1 was held under attachment pending a partition. The debts of the encumbered estates were reduced from 321,267 *l.* to 286,747 *l.* during the year, and those of the Wards' estates from 51,631 *l.* to 34,913 *l.*

Government estates in the Punjab are of 2 classes, consisting in 1876-7 of 401 estates, of which Government was the proprietor, and 88 *kham* estates. The 401 Government estates proper, most of which are more commonly known as *rakhs* or preserves, contained 10,273,222 acres, of which only 121,192 were cultivated; and it was estimated that 2,436,335 acres were fit for cultivation, and available for lease or sale. The income from the area under cultivation was 9,144 *l.*, or nearly a rupee an acre; and the total income from the entire area of Government land was 68,928 *l.*, or about 1 anna an acre. *Kham* estates are those in which the Government collects the revenue from the cultivators instead of from the actual proprietor: the total area of land under cultivation in the 88 estates was 24,435 acres, on which the net demand was 5,585 *l.* In 1876 there were 40 wards in the Punjab, whose estates were under Government management, their total income being 45,936 *l.*, more than half of which was derived from landed property. Great attention is always paid to the welfare of the wards, and the results are usually satisfactory.

GOVERNMENT AND WARDS' ESTATES.

Punjab.

In the Central Provinces 5 more estates were brought under the Court of Wards during 1876-7, the total area at the end of the year being 637,690 acres. The total balances at the credit of the estates amounted to 19,695 *l.* There are no Government estates properly so called in these provinces.

Central Provinces.

No Government or wards' estates exist in British Burma, Berar, Mysore, and Coorg.

British Burma, Berar, Mysore, and Coorg.

During the year 6 estates in Ajmere, having a gross income of 8,260 *l.*, were under the management of the Court of Wards, and are believed to have been carefully and successfully administered.

Ajmere.

There were 34 estates in the Madras Presidency under the management of the Court of Wards during the first half of 1876. The number of wards concerned was 41, of whom 35 were males and 6 females. Of the estates under the court, Ramnad, in the Madura district, with a revenue of nearly 80,000 *l.*, was by far the most important. Other large estates were Parlakimedi in Ganjam, Ettiapuram and Salur. The total area of cultivation is reported to have been approximately 790,385 acres against 739,954 in the preceding year. Including previous accumulations, of which about 300,000 *l.* was in Government securities, the balance to the credit of the estates on 30 June 1876 amounted to more than 375,000 *l.*, of which nearly 220,000 *l.* belonged to the Parlakimedi estate alone. Ramnad alone owed 130,000 *l.* to Government, for the payment of which the estate is hypothecated. Much was done in the matter of agricultural repairs, especially in the large estates. Fair progress was made in the education of the wards. A scheme of educational training of high order had to be abandoned owing to its cost.

Madras.

There are no Government estates in the Bombay Presidency. During 1876-7 a special enactment was passed by the Government of India with the view of extending the provisions of the Broach Thákurs Act to meet the case of needy landlords in the Kaira district. In Ahmedábád and Broach the work of paying the debts of the embarrassed landlords made steady progress. Including these specially protected properties, there were, throughout the Presidency, under the management of the collectors a total of 814 estates, with an area of 94,370 acres, and a yearly revenue of 25,100 *l.* The balance in hand at the end of the year amounted to 33,676 *l.*

Bombay.

V.

AGRICULTURE.

SEASONS AND CROPS.

Bengal.

Generally speaking, the rainfall in Bengal during 1876-7 was above the average, and well distributed. Where (as in the Patna, Orissa, and Chota Nagpore divisions) the rainfall was deficient in the early months of the year, the heavy and well distributed falls in the latter months secured a good outturn. In Chota Nagpore, however, the drought in the beginning of the year had a disastrous effect on tea cultivation in Hazáribágh, otherwise the harvests were on the whole full and plentiful; and where, owing to the late setting in of the rains, the high land crops were below the average, the winter crops yielded an abundant harvest. In Backergunge, Noakholly, and Chittagong the prospects of the crops were exceptionally favorable until the cyclone of 31 October 1876, which not only devastated the country, but swept away large numbers of the population. The cyclone was followed by a pestilence, which carried off thousands of the survivors, and crushed the spirits of those that still remained. But, notwithstanding this unprecedented calamity, the people were, towards the close of the year, recovering from the shock, and were looking forward with confidence to a good harvest. With the above exception, the year was one of prosperity to the cultivators, and most of the district officers report signs of a marked amelioration in the material condition of the people. The high prices of food grains which prevailed during the year, owing to demands in the famine tracts and the high rate of wages of labour, have tended to improve the condition of the lower classes of the people. In most of the districts of the Patna Division, however, and in the districts of Lohardugga, Hazáribágh, and Manbhoom, the condition of the people is one of extreme poverty, the wages of labour are low, and the cultivators are involved in debt.

Assam.

Assam enjoyed, on the whole, fairly good harvests in 1876-7. In Sylhet and Cachar, the two districts in the Surmá Valley, the rainfall was normal, and the cyclone of 31 October 1876 was only slightly felt. The outturn of crops in Cachar was unusually good, while in Sylhet about one-fourth of the rice crop was destroyed by blight. Tea and other crops did well. Along the Brahmaputra Valley the rice yield was three-fourths of the average produce. Lakhimpur had a deficient rainfall, and only half an average crop. No material variations occurred in the prices of food grains and other staples in the several districts.

N. W. Provinces.

The year 1876-7 was one of delayed and somewhat deficient rainfall in the North-Western Provinces; but the harvests proved plentiful, and food was cheaper than during several years previously. Towards the close of the year the demand for grain to be exported to Europe and to Southern India largely increased, and prices rose considerably. Several districts were visited by severe hailstorms during the year, causing wholesale destruction of crops, and necessitating large remissions of rent and revenue. Some local distress was occasioned by the inundation of the Ganges in the Allahabad and Mirzapur districts, and several villages in Saháranpur suffered from the overflowing of the Jumna. The depressed state of the agricultural population of the Jhánsi division continued to occupy the special attention of the Government. Of the crops under cultivation in 1876-7, wheat was the principal one, occupying 532,314 acres. Other food grains occupied 203,281 acres; indigo and other dyes, 149,417; sugar, 129,605; rice, 120,377; and cotton, 41,150.

Oudh.

For Oudh the year 1876-7 was a prosperous one. Though the heat was greater than usual, and the rainfall considerably below the average, yet the year was not unhealthy, and grain was cheap and plentiful. A violent storm occurred on 12 April 1876, during which hailstones fell at Lucknow more than 2 inches in diameter. There was a slight increase for the year ending 30 September 1876 in the acreage of crops, the number of acres under cultivation advancing from 8,866,034 in 1874-5 to 8,909,924 in 1875-6. Rice occupied 1,766,683 acres, wheat 1,903,628, and other food grains 4,544,019. Then came oilseeds and sugar. Cotton took only 22,830 acres, and 57,658 acres were devoted to tobacco.

On the whole the year 1876–7 was a prosperous one for the Punjab, and the harvests were fairly good, while scarcity elsewhere enabled large profits to be made by exportation to southern provinces. Owing to the abundant rainfall of the latter part of 1875, the area under cultivation for the spring crop of 1876–7 was 12,046,273 acres, against 10,961,257 in the previous year. The chief increase was under wheat and gram. For the autumn crops, the area under cultivation slightly fell from 9,610,166 acres to 9,590,007 acres. There was a general fall in the prices of agricultural produce. The principal crop in the Punjab is the wheat crop gathered in the spring. The fall in the price of wheat in the winter of 1876-7 must have been owing to the anticipation of an abundant harvest in the spring. These anticipations were not altogether realised, as the heavy rains at harvest time were unfavorable to the outturn; but the fact that the price of wheat fell, in the face of a great demand for export to the famine districts of Bombay and to Europe, shews that there was a plentiful supply of wheat in the Province. Wheat is grown chiefly for sale and export, the agriculturists ordinarily subsisting on the cheaper grains, in which also there was a considerable fall in price. SEASONS AND CROPS. Punjab.

Though the seasons were somewhat abnormal in the Central Provinces, yet most districts received a rainfall little short of their average and the crop was on the whole favorable. Some bad floods occurred owing to an unusual fall of rain. In Betul 21 inches fell in two days. The result was the sudden rising of rivers, causing damage by widespreading inundations. One of the worst floods was of the Kanhan river at Kamptee, where many houses were destroyed. Taking all the crops raised in the Central Provinces, the aggregate yield was probably a fair average. The rice crop was a little below the average, much having been injured in the threshing floors by the untimely rains of the cold weather, while the crop failed largely in Chanda and the Upper Godavari districts through deficient rainfall. The loss in rice was made up by the full yield of jowari, cotton, and oilseeds. Wheat, however, suffered in several tracts from blight and hail. Continuous high prices, owing to the heavy exports of food grains to the famine tracts of Bombay and Madras, and of wheat to meet the demands in Europe, made the season a specially prosperous one to producers. The means of carriage were inadequate to meet the export trade from Chattisgarh to the railway at Nagpur, and notwithstanding the large quantities sent out of the district, prices were not much affected. Central Provinces.

The rainfall in British Burma during 1876-7 was favorable, and the harvests were plentiful. There were no serious floods, as in 1875. The area under cultivation increased by over 100,000 acres, or 3·81 per cent. Six-sevenths of the land under tillage produces no crop but rice, the production of which will probably be largely stimulated by the high prices that ruled at the close of the year, owing to the great demands for export. British Burma.

In Ajmere the rains were sufficient, and the crops, with the exception of cotton, which almost entirely failed, were abundant and good. Food was very cheap, and the graindealers complained that the railway had injured them. It has doubtless done this by moderating the prices, which previously were excessive, owing to the difficulty of transport. The prices now are assimilated to those ruling in Delhi and Agra. Ajmere.

Of the total area of the Hyderabad Assigned Districts, 63 per cent. was under cultivation in 1876–7, which year, notwithstanding damage done by unseasonable rain and hailstorms, was productive of fair average crops, yielding more than sufficient for the requirements of the people. The surplus stores of grain, which had accumulated during many preceding years, met in a great degree the demand of the famine districts, and the prices of ordinary food grains, by rising to nearly treble their ordinary value, became a heavy tax on the poorer classes of the population. The export trade in grain caused an enormous accession of wealth to flow into the province during the year, which was certainly one of more than usual prosperity to the chief classes. Jowari and cotton were the principal crops cultivated, and next in importance were wheat and linseed. The trade in the two last-named products is rapidly increasing. The expansion of the area under linseed by no less than 125,131 acres is noteworthy, as shewing that the Berar cultivator readily adapts himself to trade. Thirteen per cent. of the land is arable uncultivated, and 24 per cent. unculturable. Berar.

The year 1876–7 will ever be memorable in Mysore for the beginning of a disastrous famine unparalleled in the annals of the province, and extending with Mysore.

SEASONS AND CROPS.

even more calamitous effects into the year 1877-8. At Bangalore the registered rainfall averaged 34·66 inches in 1871, 1872, and 1873. In 1874 there was a superabundance of rain, 56·54 inches; but in 1875 and 1876 the rainfall was only 22·06 and 17·34 inches respectively. In 1877 the rainfall was 39·26 inches. The harvest of 1874-5 was abundant; but the failure of the south-west monsoon of 1875 caused a loss of the greater part of the dry crops, and the succeeding north-east monsoon was insufficient to fill the tanks that irrigate one-sixth of the province. Distress began to prevail; and early in 1876 the Government of India instituted relief works and made considerable remissions of revenue. The south-west monsoon rains of 1876 were capricious and scanty. The north-east monsoon wholly failed; in lieu of the 12 to 15 inches of rainfall usual in September and October, 1 inch was registered at Bangalore in the first week of September, another inch after an interval of 2 weeks, and, again, half an inch after a further interval of 4 weeks. The dry crops died on the ground after they were half or three-quarters grown; and the tanks were deprived of their water supply, on which alone the spring paddy crops depended. The area of Mysore is 27,077 square miles, and its population 5,055,412. The affected area was 19,089 square miles, with a population of 3,857,486. Much relief was afforded in 1876 by the extension of public works, for which special funds were granted. Restrictions on grazing within the State forests were removed, and a large number of the more valuable cattle of the province were thereby preserved. In the early months of 1877 the civil officers were put to many straits to find suitable labour for the thousands who were thrown on their hands. The daily average number employed on civil relief works was no less than 55,687 in the week ending 31 March 1877. The numbers subsequently declined, and ranged from 28,000 to 30,000 and upwards during the remaining hot months. From an early period of the famine feeding-houses were provided in every district for the relief of those unable to sustain life by their own labour. During the week ending 31 March 1877, 57,974 persons were gratuitously fed, and the numbers rose early in May to over 100,000. Fuller particulars of the later period of the famine will be described in the Annual Statement for 1877-8.

Coorg.

In Coorg the high prices of food grains and coffee stimulated agriculture during 1876-7, and the extent of land under rice cultivation increased, but the autumn crops in some parts entirely failed owing to the want of seasonable rains. The yield of cardamoms was good, but the coffee crops generally suffered.

Madras

At the beginning of the year 1876-7 the prospects in the Madras Presidency were gloomy, and they continued to grow daily darker and darker. Thus the seasons of 1876-7 were unprecedentedly disastrous. Both the monsoons almost utterly failed in many parts of the country, and the effects of the deficient rainfall on cultivation were very great. The acreage of wet cultivation diminished from a little over 3 millions to about 2½ millions, and the area of unirrigated lands from 13½ to 10½ millions of acres. In particular districts the proportion of decrease was much greater. Cotton and indigo cultivation decreased by nearly 48 and 54 per cent. respectively, and little or no crop was obtained. Consequently the year was one of extreme misery and suffering to the poor, and of great anxiety to all classes of the population. The districts which suffered most severely from drought were, inland, the Ceded Districts, Kurnool, North Arcot, Salem, Coimbatore, and parts of Trichinopoly; and, on the seaboard, Nellore, Chingleput, Madura, and portions of Kistna and Tinnevelly. Ganjam and Vizagapatam were more favored as regards rainfall than other districts, but even in them the distribution was abnormal, and they suffered from floods. At Chicacole, in the former district, nearly 1,300 houses were washed away in October 1876, and the town was for 3 days under water.

Bombay.

The chief events of the year 1876-7 in the Bombay Presidency were the failure of the later south-west monsoon rains, the loss of crops, and the consequent widespread scarcity and distress in the Deccan and Southern Márátha Country. Including Native States, the area affected extended over 39,000 square miles, with a population of 5,867,000 souls. The distress began early in October 1876, and became more intense during the remainder of the year under review. In the Northern Konkan, Gujarát, and Sind the season was on the whole prosperous. The total rainfall during the year was deficient at every station. As, under the Bombay revenue system, land is taken up for cultivation

before the beginning of the rainy season, the failure in the rain supply of 1876 had no effect on the area held for cultivation, which increased from 23,885,097 acres in the early months of 1875 to 24,401,334 acres in the corresponding period of 1876. About four-fifths of the total increase was in Sind. The increase in area was probably due to the rise in the price of agricultural produce that followed the somewhat short harvests of the previous season (June 1875 to March 1876). But it appears that of the whole area taken up for cultivation, only 15,235,239 acres were actually cropped. In cotton alone, for which special details are available, there was a reduction from 4,516,587 to 3,232,744 acres; this fall in the cotton area being, however, confined to the districts that suffered from want of rain. SEASONS AND CROPS.

The following is a short account comprising the chief facts relating to the failure of the harvests of 1876 in Southern India generally, the misfortunes thereby caused, and the relief operations undertaken, up to the middle of 1877. No attempt is here made to deal with the history of the famine as a whole, since that will more properly be given in the Statement of the Condition of India during 1877-8. FAMINE IN SOUTHERN INDIA.

The summer rains (south-west monsoon) of 1876 were extremely scanty over tracts belonging to the Presidencies of Madras and Bombay, to the State of Hyderabad, and to the Province of Mysore. Over these tracts, which contain a population of about 26 millions, the summer rains yield the main rainfall of the year; they fill the irrigation tanks, and on them depends the safety of the main food crops. In the above-mentioned districts, therefore, the chief food crops of 1876 failed by reason of the shortness of the summer rains. But in the rest of the Madras country the main rainfall comes with the October rains (north-east monsoon); these rains were also very deficient, and so the irrigation tanks of the Madras districts remained dry, and the chief food crops failed. The fate of the Madras crops was thus partially in doubt until the middle of November. Failure of the crops of a single year might not have caused a famine if it had been confined to only one province or to a few districts; for inter-communication, by railway and by road, is easy and cheap all over Southern India, and the surplus of one province would have supplied the deficiency of another. But in 1876 the area of failure was so vast that famine prices were inevitable; and by the month of December food-grains in the markets of Southern India were three times as dear as in ordinary years. The calamity pressed with special weight on some of the stricken districts (notably Bellary, Sholapore, parts of the Carnatic, and of Mysore), because the crops of one, or even two, preceding years, had been short. In such districts food stocks were lower than usual, and the people had less money to buy food brought from a distance. In Bengal, Burma, Central and Northern India, the crops were happily good; food stocks were large; and there was plenty of grain to supply the stricken districts, if it could be carried thither, and if the people could afford to pay for it. In the autumn of 1876, no general instructions were issued by the Government of India for the management of serious and widespread famine; nor until November was it certain, from the reports received by the Supreme Government, that positive famine was impending in the Madras districts. From the month of September 1876, a large importation of grain from Northern India and Bengal into the distressed tracts began; and this traffic rapidly increased till, in the month of December, grain was landed by sea at Madras, and was also consigned by railway, from the west, through Raichore (the westernmost limit of the Madras Railway), in much larger quantities than the railways could distribute, to the districts of the Madras Presidency and of the Mysore Province. From December private traders kept consigning, month by month, into the interior of the famine districts more grain than the railways from Madras, Beypore, Negapatam, and Raichore were able to carry. This grain came from Bengal, Burma, the Punjab, the North-Western Provinces, Central India, and Sind. Government did much to facilitate the traffic; and on one occasion only was there any interference with private trade, namely, when 30,000 tons of grain were bought by the Madras Government at the beginning of the famine, and were carried into the interior of the country. To this extent the railway and cart power of the country was temporarily occupied

FAMINE IN SOUTHERN INDIA.

by Government to the exclusion of private trade. Prices continued dear; but it was not till nearly the end of July 1877, that the first reports were received that food could not be had in the bazaars by those who could afford to pay for it. In some of the worst districts the imported food sufficed for the needs of about one-third of the total population. The remaining two thirds in such districts, and a much larger proportion in the less severely afflicted tracts, subsisted on old stocks and on the yield of the petty crops that had been harvested even during the year of famine. Imports of grain by railway averaged 2,200 tons a day into the interior of Madras and Mysore, and 1,000 tons a day into the interior of the Bombay Presidency. These figures do not include the large quantities of grain distributed into the interior by road or canal, from the port of Madras, and from the lesser ports on the Coromandel, Malabar, and Southern Mahratta coasts. In August 1877 there were in Central and Northern India and in Bengal large stocks of food ready to go forward to the famine districts as soon as the railways could carry them.

During November and December 1876 hundreds of thousands of people sought and obtained relief wages on works which were not of the highest utility, and on which there was no adequate professional supervision. In the Government Despatch, conveying instructions for Sir Richard Temple's mission to the famine country, it was mentioned that small and well-supervised local relief works might properly be opened at the beginning of a period of distress, so long as there was doubt regarding the extent of scarcity; but that, when measures of relief on a large scale became clearly necessary, great public works of a permanently useful type should be opened for the employment of relief labourers. However, before the new orders reached the local officers, 1,050,000 persons in the Madras districts, and 266,000 in the Bombay districts, were, in the beginning of January, receiving relief wages for labour that was generally inadequate, on works that were often of little value. During January the manner of employing relief labourers changed greatly for the better in the Bombay districts, where the local government utilised to the full its staff of engineers, and possessed a number of excellent irrigation schemes and other projects. In the same month Sir Richard Temple was deputed by the Government of India to visit the famine districts, and to confer with the local governments and their officers as to the best means of enforcing economy and system in relief operations. It was found that vast numbers were in receipt of relief who, for a time at any rate, could support themselves. The relief wage-rate was lowered, the number of petty relief works was reduced, and the supervision of relief labour was increased. In consequence of these measures the numbers of people on the relief works were, at the end of April, 716,000 persons in the Madras districts, and 62,000 in Mysore. In Bombay, at the same time, the numbers had risen to 287,000. In Madras, 11 per cent. of these labourers were employed on useful works under professional supervision. In Bombay 90 per cent. were so employed. In Mysore, 47 per cent. were on useful public works, but in Mysore the numbers on relief works were reduced as the pressure of the famine increased, and large sums were spent on infructuous alms, instead of being devoted to improving by relief labour the many irrigation works of the province. It is not intended to be implied that the relief works managed by revenue officers were absolutely useless or wholly unsupervised, but much of the roadwork was not of lasting value, while its cost was from twice to twenty times the ordinary rates; whereas, on the other hand, the irrigation and railway works executed under professional supervision, will be of permanent good in improving the country and averting future famines, and some of them were executed at only from 20 to 50 per cent. above ordinary rates.

Gratuitous relief on a large scale began early in the famine. By the end of December 1876 there were in the receipt of gratuitous relief, 110,000 persons in the Madras districts, 3,000 in Bombay, and 30,000 in Mysore. These numbers were somewhat reduced in January and February 1877; but from the end of February they increased enormously, and rose by the end of July to 839,000 in Madras, 160,000 in Bombay, and 151,000 in Mysore, in which province the number of persons in receipt of gratuitous relief was more than three times higher than the number of the relief labourers.

Howrah Botanical Gardens, established in 1786, worked satisfactorily in 1876 7. Government had under consideration the question of establishing branch gardens in the Himalayas, and at their base; and the formation of such a garden at Rungaroon, in the Darjeeling district, has been already begun. Alipore Zoological Garden became in 1876 a Government institution, with a subsidy from provincial funds not exceeding 2,000 *l.* a year. EXPERIMENTAL FARMS, HORTICULTURE, &c. Bengal.

At the model farm in the Khási Hills in Assam, operations were much restricted during 1876-7. Experiments in growing wheat and oats did not succeed so well as those in growing barley. It is difficult to get wheat to ripen properly at the elevation of Shillong before the beginning of the rains. Oats failed owing to the poverty of the soil. Different varieties of English potatoes planted in a richly-manured patch of land succeeded very well; all vegetables produced in the kitchen garden obtained a ready sale, and the fruit-trees in the orchard made fair growth. Assam.

The Botanical Gardens at Saháranpur and Mussooree, in the North-Western Provinces, were placed in January 1877 under the charge of Mr. Duthie, a skilled botanist, who had been recommended by Sir J. Hooker for the appointment. Saháranpur garden measures 107 acres; the Mussooree gardens have an area of 23 to 25 acres respectively. The different elevation of the 3 gardens gives 3 different climates, and affords scope for the introduction of novelties from various countries. The primary object of the gardens is the collection of botanical products from other parts, both of India and of the world. No less than 224,000 trees were supplied from the gardens during the year to the Irrigation Department for canal plantations. It is intended to maintain the Cawnpore farm permanently, and to concentrate there all experiments of an agricultural character, giving it also the same position as a distributing centre of useful trees and plants for the lower provinces that Saháranpur occupies for the upper districts. The area of the farm is 164 acres. Several important experiments of cultivation and with machinery were conducted during the year. Statistics were obtained as to the results of fruit culture, shewing that a net return of 15 *l.* to 20 *l.* an acre may be secured by cultivating fruits on a limited area near large cities. Grapes, jackfruit, strawberries, and mangoes were the most profitable, the first three giving profits of 30 *l.* to 40 *l.* on one acre. N. W. Provinces.

Storms did much damage to fruit in the Horticultural Garden at Lucknow, in Oudh, during 1876-7. Several experiments were made with the eucalyptus. The superintendent was of opinion that the *eucalyptus rostrata* is well adapted to the plains of India. The *pithecolobium dulce* (*inga dulcis*) was introduced from Madras some years ago, and is now quite established at Lucknow, and held to be a most useful tree. It grows rapidly, gives good shade, produces firewood and leaves for manure, and bears an abundance of sweet pods, which natives much relish. Oudh.

During 1876-7 the working of the experimental farm at Amritsar, in the Punjab, was not attended with the success which would justify its being maintained; and, as no funds were available to work the undertaking on a scale that might promise success, it was determined to close the farm. Punjab.

In the Central Provinces the Nágpur Model farm had a very successful year, and did much to demonstrate to the cultivating community the advantage of improved modes of culture for the ordinary crops of the country. In wheat cultivation results were obtained from manuring and irrigation, such that the produce of an acre of white-eared wheat amounted to 2,200 instead of about 410 lbs., and the value would be over 6 *l.*, the cost of cultivation being not more than 1 *l.* Guinea grass, lucerne, and other fodder crops have passed beyond the stage of experiment, as it has been found that they can be profitably cultivated. Central Provinces.

Experimental cultivation of all sorts is conducted in the gardens at Rangoon, belonging to the Agricultural Society of British Burma. This society has also done much good by distributing seeds and plants throughout the province. Phayre Museum, which was built in the gardens in 1871, was visited during 1876-7 by 239,427 persons, of whom 181,524 were Burmese and Chinese. British Burma.

EXPERIMENTAL FARMS, HORTICULTURE, &c.

Mysore.

In Mysore during 1876-7, the horticultural experiments at the Bangalore Horticultural Gardens were much impeded by the scarcity of water. Some good results were obtained early in the season in the cultivation of various English and American potatoes. Special attention was given to the propagation of chocolate, cinnamon, senna, rhea fibre, carob-tree, breadfruit-tree, and other useful plants likely to be required for distribution. The experimental farm at Bangalore gave many proofs of its usefulness, but the failure of rain was inimical to the success of some of the experiments. Successive crops of maize giving a heavy yield were produced throughout the year by means of well-irrigation; and *sorghum saccharatum* gave a great weight of green fodder even during the dry season.

Madras.

Notwithstanding the unpropitious weather, much useful work was done on the Government farms in the Madras Presidency, and numerous facts were gathered which will be useful in giving a direction to the efforts that must be made toward averting from agriculture such calamities as those that have lately befallen Southern India. The organisation of the agricultural school occupied much time and attention. This school was opened in October 1876, being temporarily established in a building on the Sydapet Experimental Farm. Numerous applications for admission were received, but, the accommodation being very limited, only 30 candidates could be accepted. Of the men admitted, fully one-third are from other Presidencies. The work of the institution progressed steadily, and the majority of the students acquitted themselves creditably at the sessional examination. At the Ootacamund Botanical Gardens several new varieties of potatoes were introduced, and experiments were carried on with the view of finding a remedy for the diseases which prove so disastrous to potato crops on the Nilgiris. Much success attended the cultivation of ipecacuanha and other medicinal plants.

Bombay.

There are 3 Government farms in the Bombay Presidency: one at Saláru in Sind, one at Bhadgaon in Khándesh, and one near Dhárwár. The unfavorable season interfered much with the success of the experiments. Over the whole Presidency two agencies, soldiers' gardens and gardens at railway stations, help to keep alive a taste for flowers. At most military stations the troops are encouraged to spend part of their time in gardening; and almost every railway station is rich in well-tended flowers, shrubs and climbing plants.

AGRICULTURAL STOCK.

Bengal.

No information has been received as to the amount of agricultural stock in Bengal during 1876-7.

Assam.

According to an estimate given for 1876-7, there were in Assam 1,366,927 cows, bullocks and buffaloes, 490 horses, 5,756 ponies, 62 donkeys, 199,242 sheep and goats, and 124,578 pigs.

Oudh.

The number of cows, bullocks, and buffaloes in Oudh rose from 4,627,968 in September 1875 to 4,946,944 in September 1876, and there was also a great increase in the number of sheep, goats, and pigs.

Punjab.

In the Punjab at the Ráwalpindi Horse Fair, which began on 26 March 1877, the show of horses (2,217) and mules (566) was somewhat superior, both in numbers and quality, to the very large gathering of 1876. The effect of using high-class sires was apparent in the young mares, which showed more signs of breeding than the older animals. The want of competent *salutris*, or native veterinary surgeons, to perform gelding, has necessitated a project for the establishment of veterinary schools and colleges being considered by Government. In mule breeding good progress has been made, the numbers exhibited at the fair having risen from 229 in 1875 to 422 in 1876 and 566 in 1877. Over 90 mules were bought for Government. Minor horse fairs were held at Jhang, Dera Ismail Khan, Dera Gházi Khan, and Amritsar. Government stallions in the Punjab increased in number from 82 to 138. The number of branded brood mares was 1,501 for horse breeding, and 474 for mule breeding. In the Deraját border the prejudice of the Biluch against mare branding has not yet been overcome. In the Hissar district about 4,000 cattle died from what is known as *black quarter* and foot-and-mouth disease. At the customary cattle fairs 183,027 animals were exhibited, against 186,315 in 1874-5, and 145,360 in 1875-6, when the cholera caused the stoppage of some of the fairs. The fairs in the Hissar district and those held at Amritsar in spring and autumn are important and well managed, and supply a real want. Efforts were continued to improve the breed of sheep and horned cattle.

AGRICULTURAL STOCK.

Estimated in round numbers, there were in the Central Provinces 5 million cows, bullocks and buffaloes, 10 thousand horses, 80 thousand ponies, and 20 thousand donkeys. Central Provinces.

The returns for 1876 shew that the number of buffaloes and oxen in British Burma was over 1,300,000. Cattle disease prevailed in the Arakan and Tenasserim divisions, in the former of which no less than 60,000 head of cattle are said to have perished. The disorder, which is a form of dysentery and not infectious, arises from want of care in protecting the animals from the effects of great and sudden changes of climate. British Burma.

At the Pushkar horse fair in Ajmere, which was encouraged by Government prizes, 906 horses were shewn, being 159 more than in the previous year. Ajmere.

In the Hyderabad Assigned Districts a decrease in the number of cows and bullocks, from 1,410,135 to 1,393,971, is attributed to the Bunjaras not being able to maintain as many as in former years, owing to the gradual extinction of their carrying trade. Berar.

In Mysore during 1876-7 there was a great and general decrease in the number of agricultural stock, as compared with 1875-6. The number of cows and bullocks fell from 2,894,444 to 2,424,029; of horses, from 7,195 to 5,678; of ponies, from 18,130 to 13,638; of donkeys, from 50,136 to 42,413; of sheep and goats, from 2,094,740 to 1,744,111; and of pigs, from 42,961 to 36,511. Among cattle the mortality was excessive; the returns shew that 462,240 head of cattle died, against 163,254 in the previous year. The causes assigned are the prevalence of murrain, and the want of fodder and water occasioned by the drought. No cattle show was held during the year. Mysore.

In Coorg the mortality among cattle fell from 7,853 in 1875-6 to 5,737 in 1876-7. Coorg.

Owing to the failure of pasturage and drinking water, the mortality among cattle was exceedingly severe during 1876-7 in the Madras Presidency. The losses reported were 935,287. At the beginning of the year the numbers of cattle and sheep in the country had been estimated at 8,270,000 and 6,745,000 respectively. Madras.

Returns of agricultural stock in the Bombay Presidency down to 31 July 1876 shew an increase of cattle from 7,169,731 to 7,277,595; of horses, from 144,675 to 150,070; and of sheep and goats, from 3,221,051 to 3,295,231. Cattle disease is supposed to have carried off 36,380 head of cattle; and after the date of the returns there was much loss of cattle in all the famine affected districts, except Khándesh. The total number of mares covered by Government stallions fell from 2,232 to 2,137, and only 4 out of the 7 annual horse shows were held during the year. Bombay.

COTTON.

Cotton cultivation is not of first-rate importance in any of the districts of Bengal, except the Chittagong and Tipperah hill tracts, and possibly parts of Jalpáiguri. This staple is cultivated not as an article of external commerce, but for the sake of variety and domestic use, the agricultural classes only preferring strong home-made spun cloth to the less durable machine-made European cotton piece goods procurable in the bazar. Foreign twist and cloth are gradually driving native cotton out of the market. It is remarkable that the whole of the imports of raw cotton from the North Western Provinces and the Punjab are made by rail, none being sent by river. It is computed that, after deducting the exports, about 9½ million lbs. remain for local consumption in the mills established in the vicinity of Calcutta. Cotton. Bengal.

Cotton in the Central Provinces is most largely cultivated in Nagpur, Wardha, and Raipur. During 1876-7 there were 802,437 acres under cultivation, and the crop was a fairly good one. In Nagpur the average produce per acre was 80 lbs., and in Wardha 114 lbs. Experiments at the Nagpur Model Farm shewed that, while the ordinary cultivation of cotton there gave an average yield of 102 lbs. of cleaned cotton, the yield in the manured and irrigated field was no less than 326 lbs. of clean cotton per acre. Central Provinces.

In the Madras Presidency the area cultivated with cotton in 1876-7 was only 810,013 acres against 1,571,537 acres in 1875-6, thus exhibiting a decrease of nearly 48 per cent. The principal cotton districts are Bellary, Tinnevelly, Kurnool, Kistna, Coimbatore, Madura, and Cuddapah. In Bellary the percentage of decrease was as high as 90. Madras.

COTTON.
Bombay.

There was a decrease in the area under cotton cultivation, and in the outturn of cleaned cotton, in all parts of the Bombay Presidency, except Sind and Gujarát. The acreage fell from 4,516,587 to 3,232,744, and the outturn from 2,142,835 to 1,603,099 cwt. Under the Cotton Frauds Act, 23 prosecutions were instituted; of these, 6 ended in conviction, 12 in acquittal, and 5 remained pending. The chief cause of failure was the difficulty of proving fraud in the adulteration of cotton for sale.

INDIGO.
Bengal.

The outturn of indigo in Bengal was 127,802 maunds in 1874-5, and 102,860 maunds in 1875-6, while the estimate of 1876-7 rose to 137,000 maunds, the increase being due to the unprecedented yield of *khoonties*, and to the extension of cultivation in Behar. Notwithstanding its vicissitudes, the production of indigo is still a principal industry in Bengal. In several districts it is the most important article that engages the attention of the people. The marked decline in the cultivation of the plant that followed the indigo riots of 1859-60 has been counterbalanced in the long run by extended cultivation in Behar and the North-Western Provinces, and especially by its cultivation by native capitalists; and the total annual outturn of the country is scarcely less, on an average, than it was 30 years ago. The average is rather more than 100,000 maunds, valued at 2,500,000 *l.* Some of the planters of Bengal are introducing reforms, both as regards their connexion with the cultivators, and in the preparation of the dye.

TEA.

Tea cultivation in India is yearly becoming a more important industry. In 1875-6 the quantity of Indian tea exported by sea to foreign countries was 24,361,599 lbs. valued at 2,166,417 *l.*; the quantity rose in 1876-7 to 27,784,124 lbs. valued at 2,607,425 *l.*; and there was a still greater increase in the following year. From mature plants the average yield of Indian tea per acre in 1876-7 was about 250 lbs. The industry is now in a good and safe position, and there are signs that the labour question has become more easy of solution. Statistics shew the rapid proportion in which the consumption of Indian tea has increased in England as compared with China tea. In 1868 the supply of China tea (142 million lbs.) was 15 times as great as that of Indian tea (9 million lbs.). In 1876 the China supply (156 million lbs.) was little more than 5 times as great as the Indian (28 million lbs.). At the same time it must be observed that the China supplies are as large as ever; and it is probable that the China cultivation has been little, if at all, supplanted by the increase of cultivation in India. According to a statement recently furnished by the Government of India, the total area under tea cultivation in Assam, Bengal, North-Western Provinces, Punjab, Madras, and British Burma, rose from 125,000 acres in 1875-6 to 145,000 acres in 1876-7, and the area taken up for planting but not yet planted from 475,000 acres to 485,000 acres, while the approximate yield shewed an increase from 26,500,000 lbs. to 29,500,000 lbs.

Bengal.

Drought at the beginning of 1876 had a peculiarly disastrous effect upon tea cultivation in Hazáribágh, the outturn of 1876 being only half of that of 1875. This district of Bengal is subject to droughts, and irrigation can be applied only at a high cost. But Hazáribágh is free from the labour difficulty, which has so seriously affected tea cultivation in Assam. The supply of labour is sufficient and cheap, and the only complaint which the planters have made is that the coolies are apt occasionally to leave the tea gardens in order to work on their own land. In the district of Darjeeling there were 132 gardens at the close of 1876, against 121 in 1875. The total area under mature plants was 15,695 acres, and the outturn of tea for 1876 was 4,181,622 lbs., as compared with 4,610,758 lbs. from 14,954 acres in 1875. The decrease was owing to an unfavorable season, and to the making of a smaller quantity of good tea in preference to a large outturn of second-rate quality. Much higher prices were consequently obtained, and the profits were greater. An outbreak of cholera occurred, from which the coolies of many gardens suffered severely. Tea cultivation was being rapidly extended in the Dooars of Jalpáiguri, where it is likely to be a thriving and remunerative industry. Chittagong tea is said to be of excellent quality, and to shew some promise of becoming the most important staple of a direct trade of Chittagong port with Europe.

Assam.

Very meagre information has been supplied regarding the condition of the tea industry in Assam during 1876-7. Planters have always shewn themselves very reluctant to furnish statistics. It appears that the number of plantations

rose from 640 in 1875-6 to 702 in 1876-7, and that the total area under mature and immature plants is estimated to have risen from 87,300 acres to 102,700 acres, while the land taken up for planting, but not yet planted, rose from 361,393 acres to 372,849 acres. About 20,000,000 lbs. of tea was yielded in 1875-6, and 23,500,000 lbs. in 1876-7. Cachar, Sibsagar, and Lakimpur, are the principal seats of the industry. TEA.

Tea is cultivated in the Kumaun, Garhwál and Dehra Dun districts of the North-Western Provinces, and several new plantations were started in 1876-7. About 700,000 lbs. of tea was produced during the year from 3,344 acres under mature plants. N. W. Provinces.

In the Punjab there was an increase of 1,408 acres under tea cultivation during 1876-7, while the yield of tea was 766,560 lbs., obtained from 7,985 acres, against 592,200 lbs. from 6,580 acres in the previous year. For the first 3 years there is no yield at all from the tea plant, and this fact materially affects the average. The average of all the land planted in the Punjab was calculated at 96 lbs. an acre, while the land under mature plants yielded 251 lbs. an acre. Punjab.

Tea of very good quality is grown on one small estate of 110 acres in Arakan, and is said to be worth 3 *s.* a pound in the London market. The outturn of the crop of 1876 was 25,374 lbs., against 16,932 lbs. in 1875. British Burma.

Tea plantations on the Nilgiris, in the Madras Presidency, rose in number from 38 in 1875-6 to 44 in 1876-7; the area under mature plants was 1,514 acres during both years, but there was an increase in the area under immature plants from 878 acres in 1875-6 to 1,628 in 1876-7, while the land taken up for planting, but not yet planted, rose from 641 acres to 2,341 acres. In 1875-6 the yield was 220,070 lbs., and in 1876-7 it was 235,769 lbs. Madras.

Coffee cultivation is carried on in the Chittagong district of Bengal, in Mysore, Coorg and Madras. No information is obtainable with respect to the cultivation in Chittagong and in the feudatory states in the Madras Presidency. As regards Mysore, Coorg, and Madras, it has been estimated that the aggregate yield in 1876-7 was 31,655,499 lbs., as compared with 34,096,469 lbs. in 1875-6. COFFEE.

In Mysore the number of coffee plantations rose from 24,241 in 1875-6 to 24,345 in 1876-7, and their total area from 111,078 acres to 115,315 acres, while the approximate yield fell from 8,783,923 lbs. to 6,509,170 lbs. These figures are exclusive of those of cultivation in *hittals* or backyards in the Kadur district, the number of which was 4,588 and 4,606, and their extent 3,348 and 3,362 acres respectively, in the years 1875-6 and 1876-7. Mysore.

In Coorg there were 4,265 coffee-plantations in 1875-6, and 4,353 in 1876-7, the area under mature plants being 28,000 acres in the former and 35,150 acres in the latter year, and the yield being 12,800,000 lbs. and 11,921,000 lbs. respectively, the average yield per acre of mature plants thus falling from 457 lbs. to 339 lbs. Coorg.

Altogether 16,734 coffee plantations existed in seven of the British districts of the Madras Presidency during 1876-7, as compared with 15,947 during 1875-6. Most of these are in the Malabar district. The area under mature plants was 45,252 acres, yielding 12,512,546 lbs. in 1875-6, and 49,350 acres, yielding 13,225,329 lbs. in 1876-7, the latter year shewing a decrease in the average yield per acre from 277 lbs. to 268 lbs. Madras.

Poosah farm was retained in the hands of the Bengal Government for another year for experiments on a small scale in raising and curing tobacco. But the produce of the tobacco was found to have no value in the European market, and the experiments have resulted only in failure. Government have now granted a lease of the Poosah lands and buildings for seven years to the same private company that rent for tobacco cultivation the Ghazipúr stud lands in the North-West Provinces. The firm have secured the services of skilled curers, and are prepared to lay out a sufficient amount of capital to make the project a success. Tobacco is universally grown in Bengal for local consumption, but there are few places where it is grown for trade and export. Tobacco will probably be an important manufacture of the future in Rungpore and Bogra, where the *poli*, or rich alluvial lands, are admirably suited for the cultivation of the plant. Specimens of the 260 different varieties of indigenous tobacco seed were collected from the several tobacco-growing districts of Bengal, and forwarded to Kew Gardens. TOBACCO. Bengal.

TOBACCO.

N W. Provinces. The tobacco enterprise at Ghazipúr was continued in 1876-7. Advices received from Australia confirmed the valuation given to the cured leaf priced in England from 4 *d.* to 6 *d.* a pound. The North-Western Provinces are too subject to dry weather, frost, and hail for extensive cultivation of tobacco in the plains. It does better on the hills, where it is cultivated during the summer months. The leaf is said to assimilate to the best tobacco leaf of Virginia. A small area of land was placed under cultivation at the close of the year.

British Burma. Experiments in tobacco cultivation were made on a Government farm on the Koladyne river, in the Akyab district of British Burma. In the cultivation of the plant the natives of the country are quite successful, and occasionally turn out excellent leaf; but, as they are ignorant of the proper method of curing, the produce is not well suited for the European market.

Mysore. Some varieties of tobacco seeds were sown in the Lal Bagh or Horticultural Garden at Bangalore, but the plants ultimately succumbed for want of moisture.

RICE.

Punjab. Further trials of the cultivation of Carolina rice in the Punjab have, almost without exception, proved failures.

CINCHONA.

Cinchona cultivation is now thoroughly established in India. No returns have been received regarding private plantations, but their number, especially on the Nilgiris, is rapidly increasing. The main object of the Government in promoting the cultivation of the cinchona in India has been to ascertain the lowest cost at which the remedial agent could be procured without detriment to its efficiency, and the chemical form by which that end could be best secured.

Bengal. From the annual report for 1876-7 on the Government cinchona plantations in British Sikkim it appears that there were at the close of the year over three millions of plants in permanent plantation, of which more than two and a half millions were of the species *succirubra*. Besides the plants in permanent plantation there were 670,000 other plants, cuttings, and seedlings. During the year the quantity of bark collected amounted to 207,781 lbs. Mr. Wood, the quinologist, manufactured 3,750 lbs. of febrifuge from 190,798 lbs. of bark issued to him for that purpose, the cost of the bark being nearly sixpence per lb., and that of the manufactured article only about thirty-two shillings. The yield of bark which these plantations are now capable of giving is stated to be in excess of what can be converted into febrifuge at the existing factory.

British Burma. On 31 October 1875 there were 43,940 cinchona plants in the Government plantations at Toughoo in British Burma. During the year 1876-7 the area under cultivation was increased by ten acres. Large numbers of seedlings and cuttings of the species *condaminia* were distributed to missionaries, but they did not do so well as those of the *succirubra*, which grew admirably.

Mysore. The cinchona plantation on the Bababudan Hills in Mysore contained 33,356 trees in 1876-7, and there were 10,230 plants in the propagating house and nurseries at Santavari. An attempt was made to procure bark for the English market, but the specimens were mostly imperfect. Accordingly, a portion of the bark was distributed to various medical authorities for trial and opinion. All the replies stated that the bark was not of much value as an antiperiodic in attacks of fever, but that it answered well as a tonic during convalescence. The Jahagirdar of Yelandur having expressed a desire to assume the exclusive management of the cinchona plantation on the Biligirirangam Hills within the limits of his jahagir, it was arranged that he should pay to Government half the proceeds of the bark as sold in the market for the following five years in return for the cost already incurred by Government.

Coorg. During the year 1876-7 the Government cinchona plantation at Mercara in Coorg, for the cultivation of which a greater outlay had been required than was deemed justifiable, was sold at cost price to Mr. Richter. A quantity of bark of the species *succirubra* was sent by him and sold in the London market from 2 *s.* to 3 *s.* 5 *d.* per lb. Drought interfered with operations during the year. Owing to the high rates obtained for bark, a new interest was said to be springing up in Coorg with regard to cinchona cultivation, which hitherto had not found much favour in the province, though the *succirubra* thrives well there and is useful as a shade tree for coffee.

Madras. Mr. McIvor, who, since 1861, had managed the Government cinchona plantations on the Nilgiri Hills in the Madras Presidency, died in June 1876, and

the plantations were placed under the general supervision of the Commissioner of the Nilgiris. Continued drought rendered the season of 1876-7 very unfavorable. For some years the number of plants in permanent plantation had been considered to be 1,190,458, but an enumeration made after the close of the year shewed that only 569,031 were in existence. Of these there were 226,936 at Dodabetta, 208,780 at Neddivattam, and 133,315 at Pykara. There were found to be 305,432 crown barks, 260,837 red barks, 1,874 grey barks, 552 yellow barks, and 336 of other species. The total bark harvest of the year was 103,346 lbs. An unusual demand for bark in the London market, concurrent with a scarcity in the supplies from South America, caused an abnormal enhancement of the price obtained for some Indian bark that was sold in England, one kind, returned in the brokers' accounts as *mossed crown*, having realised 15 *s.* 8 *d.* per lb. No less than 142,000 plants were sold to the public at two pies (about a farthing) each, as compared with 87,700 plants sold in the previous year.

FORESTS. Bengal.

In Bengal, during 1876-7, an addition of 809 square miles of forests brought the total area of reserved forests to 3,390 square miles, of which only 806 remained for demarcation. The various reserves are so situated as to be able to supply with timber every district, except parts of the Patna and Bhagulpore Divisions, which must for the present depend upon Nepaul and Oudh. The forest staff has been fixed at 11 superior officers, giving one for every 300 square miles of reserve. It has been found a mistake to expend much money on attempts to introduce foreign trees. It is more useful and profitable to protect and cultivate the indigenous trees of the Bengal forests. The financial working of the department was satisfactory and full of promise, the receipts having risen from 8,726 *l.* in 1871-2 to 22,240 *l.* in 1876-7. The charges have simultaneously advanced from 6,751 *l.* to 21,169 *l.*, but have now nearly reached their maximum, while the receipts are expected to increase largely.

Assam.

By the addition of 877 square miles during the year, the demarcated area of reserved forests in Assam was raised to 1,910 square miles at the close of 1876-7. The demand for timber was still very limited, and the high cost of labour and carriage is a great obstacle to its export to Bengal. Plantations were extended from 502 to 620 acres, five-sixths of which are stocked with caoutchouc. The protection and improvement of the Government forests were greatly facilitated by new forest rules published during the year. Fire-protection was very successful. With the exception of Kamrúp, the influence of the civil officers had been brought to bear on the action of the villagers with excellent results, so that not nearly the same amount of recklessness and indifference was observed on the part of the villagers, hunters, and woodcutters, as in former years. Special measures had to be taken in Kamrúp, where the frequent fires were probably due to a desire on the part of the villagers in the neighbourhood of the reserves to get improved grazing for their cattle. As the renewal of sleepers on the railways in Bengal will require a large annual supply of sleepers, attention was directed to the discovery and testing of durable woods in addition to sal and other timbers known to be lasting. Indigenous lac is collected to a limited extent in very few districts; but in Sylhet, the Garo Hills, Kamrúp and Darrang, lac is reared artificially, chiefly on *ficus cordifolia*. Tea-trees of the height of 60 and 80 feet are found in the Nága Hills; but unfortunately most of them are on ground belonging to Nágas, at present independent. A terrible destruction of these valuable trees takes place, for the Nágas frequently cut down a tree merely to save themselves the trouble of climbing it to collect the seed.

N.W. Provinces

At the close of 1876-7 the total area of the forests in the North-Western Provinces was 2,577 square miles, of which only 9 were unreserved. The gross receipts fell from 96,970 *l.* in 1875-6 to 81,522 *l.* in 1876-7 (being just about half what they were in both 1872-3 and 1873-4); while the expenditure rose from 53,791 *l.* to 65,493 *l.* During the year 125,000 sleepers, valued at 16,800 *l.*, were supplied to the State Railways. Rules passed for regulating shooting and fishing in the Dun did much toward preventing the destructive fires which used to ravage the forests.

Oudh.

The boundaries of the forests in Oudh are gradually being clearly marked by ditches. Fire conservancy, so far as it was carried out, proved effectual, only

FORESTS.

1 square mile out of 48 protected being burnt during 1876–7. The receipts of the department were 33,545 *l.*, and the expenditure 20,532 *l.*

Punjab.

Tracts and woodlands under the control of the Forest Department in the Punjab comprised an area of 7,256 square miles, of which 4,280 were reserved and 9,276 unreserved. Consistent efforts were being made to organise forest conservancy so as to develop gradually the great resources of the Punjab, and the policy adopted was the subordination of the work of exploiting forests to the work of organising them. The revision of the establishment was under the consideration of the Government of India after the close of the year. The department pays its way, and has shewn a profit for the last 4 years, but there was a decrease of income from 90,983 *l.* in 1875-6 to 59,875 *l.* in 1876-7, owing mainly to the accounts of the former year having been abnormally swelled by an amount received for a large store of sleepers that had been cut ready in previous years but were not taken over till 1875–6 by the Rajputana State Railway. Expenditure decreased from 55,423 *l.* to 52,248 *l.*

Central Provinces.

Government forest and waste tracts in the Central Provinces during 1876–7 covered an area of 18,835 square miles, of which only 2,391 belonged to the reserves under forest officers. Of late years the system of management has improved; but, as the unreserved portions were in danger of exhaustion from want of proper conservation, arrangements have been made for placing the whole forests of each district in charge of a trained forest officer under the control of the Deputy Commissioner, and a system is being tried of permitting the removal of forest produce on the exhibition of a licence. The amount of forest revenue collected in 1875–6 was 72,618 *l.*, and in 1876-7 it was 66,133 *l.*

British Burma.

Demarcation of the State forest reserves was actively carried on in British Burma during 1876-7. To the 614 square miles already defined, 302 square miles were added. No very serious loss from fires was sustained, though the area protected was not large. Importation of teak from beyond the frontier continued enormously large. The forest revenue of British Burma was much larger than that of any other province during the years 1875-6 and 1876–7, and the amounts collected were respectively 177,902 *l.* and 155,141 *l.* In 1874–5 the amount was only 107,480 *l.*

Ajmere.

Forest reserves in Ajmere and Mhairwarra were placed during the year under the district officers, with the professional aid of a native sub-assistant conservator. A topographical survey of all the tracts was completed, the total area surveyed being 94 square miles.

Berar.

In the Hyderabad Assigned Districts the area of reserved forests was increased during 1876–7 from 1,213 to 1,400 square miles. Satisfactory progress was made in the demarcation of State reserves, in developing the system of fire conservancy, and in the formation of new plantations. The receipts during the year were 25,314 *l.*, and the charges 9,457 *l.*, the surplus being 1,662 *l.* more than that of the preceding year, a result attributed to the opening of the Melghat unreserved forests for every description of cutting, on payment of an export duty.

Mysore.

The number of State forests in Mysore remained unaltered during 1876-7. Demarcation lines everywhere were reported to be in good order. In spite of protective measures, all the forests with one exception suffered from fires; only 37,500 acres being successfully protected out of a total protected area of 74,800 acres. Arrangements were made for the conversion of a large area of district forests into State forests. Out of 3,818 miles of road in the province, 3,627 miles had been planted with trees on both sides.

Coorg.

A fair amount of success was achieved by the Coorg Forest Department in 1876-7, though the receipts fell off owing to a decreased sale of timber and sandalwood. All the reserved forests had been surveyed, except 4, which will not be demarcated at present, as the natural boundaries suffice. The total area of the reserves at the end of the year was 381¼ square miles.

Madras.

In consequence of the failure of the rains and the general distress among the people, the operations of the Madras Forest Department were much curtailed, and the revenue prejudicially affected, the amount of the collections falling from 42,772 *l.* to 41,476 *l.* The Public Works Department took less teak than had been ordered. In the Annamallay Forest a large quantity of curved teak was prepared for the British Admiralty. A diminution under sandalwood is attributed to the growing scarcity of mature trees. The area of fuel reserves was 132,767 acres, as compared with 134,315 acres in 1875-6.

There was a slight increase in the area of plantations. Considerable relief was afforded to the agricultural population by throwing open the reserves and forests for the grazing of cattle during the famine months. Pressure of work prevented Government from proceeding with the Forest Bill, though a forest law is urgently needed. FORESTS.

The forest area set apart in the whole of the Bombay Presidency during 1876-7 was 5,654 square miles. The finances shew a fall in receipts from 124,867 *l.* to 122,666 *l.*; and an increase in expenditure from 78,361 *l.* to 83,169 *l.*, causing a decline in the profits from 46,484 *l.* to 39,433 *l.* A revised scheme of establishments was introduced in Sind on 1 April 1876, and the draft of an Imperial Forest Act was circulated during the year. Young plantations suffered terribly from the scanty rainfall. An order which was given to throw open as grazing grounds the reserves near the famine-stricken tracts was the means of saving large numbers of cattle, Bombay.

VI.

PUBLIC WORKS.

IRRIGATION AND CANALS.

Bengal.

THE outlay of the Irrigation Department in Bengal during 1876-7 was 441,184 *l.*, besides 29,273 *l.* on *tacavi* works and repairs. An enlargement was completed of the old embankment that protected Cuttack from the floods of the Mahanuddy and Kuljooree rivers. The Doomraon and Beheea branch canals were finished throughout their whole length. The canals paying revenue during the year were the Orissa, Midnapore, Hidgellee tidal, and Soane canals. The areas irrigated by the Orissa canals and the Midnapore canals were respectively 30,382 and 32,681 acres; but these canals were worked at a loss. Hidgellee tidal canal is for navigation only, and the revenue rose from 2,294 *l.* to 4,504 *l.* Regular water-rate rules were framed during 1876-7 for the Soane canals, which had been brought into operation in the preceding year. The main Western and Arrah canals were opened for navigation in August 1876.

N. W. Provinces.

The total charge to capital during 1876-7 on the several canal systems in operation in the North-Western Provinces was 215,415 *l.*, and that to works under construction 199,935 *l.*, bringing the total capital expenditure of all kinds to 5,356,190 *l.* at the end of the year. The direct income was 298,544 *l.*, and the land revenue credited to the works was 99,398 *l.* The Canal Department irrigated 1,240,000 acres. Considerable modifications of the original scheme of the Lower Ganges Canal were made during the year. The new scheme is estimated to cost 200,000 *l.* less than the old one, and is far more likely to benefit the country than that of 1875.

Punjab.

At the end of the year 1876-7 the total capital invested by Government in the Punjab canals amounted to about 3,000,000 *l.* Of canals in operation the total income during the year was 157,212 *l.* excluding, and 254,172 *l.* including, land revenue due to irrigation works, while the expenditure was 132,128 *l.* The per-centage of profit on the capital was 0·86 per cent. excluding, and 4·20 including, land revenue dependent on canals. The per-centage of the previous year was 2·31 and 6·29 respectively. The falling off in the direct revenue was due mainly to the large and timely rainfall, which to a great extent rendered cultivation independent of canal irrigation. On the Bári Doáb Canal 2 new branches were in progress. The remodelling of the Western Jumna Canal was begun. The Sirhind Canal was still under construction. A beginning was made on the works of the new Swát Canal.

British Burma.

Work on the Pegu Sittang navigable canal was continued during 1876-7, but only 17 out of the total length of 24 miles were completed.

Ajmere.

In Ajmere the total expenditure on irrigation works during the year was 11,252 *l.*; the total amount of capital sunk up to the close of the year being 127,003 *l.*

Berar.

Berar is altogether a dry-crop producing province. Only 80,241 acres were under irrigation in 1876-7. It is difficult to get the people to contribute anything to schemes having irrigation of the land for their object.

Mysore.

The Imperial expenditure on irrigation in Mysore during 1876-7 was 96,960 *l.*, of which 45,749 *l.* was for original works, as compared with 34,106 *l.* in the previous year. Though no works could be better suited for relief purposes than those under the Irrigation Department, yet the people failed to resort in large numbers to localities where district works were in progress. To large towns they flocked in shoals, and attended the works there; but the special relief works in the districts, though offering every advantage, had to be closed, owing to the people refusing to work.

Madras.

The dryness of the season of 1876-7 was rather favorable than otherwise to the extension and repairs of irrigation works in the Madras Presidency, and the funds allotted for this purpose were fairly utilised. On the Godavery Delta System 27,126 *l.* was expended, making a total of 763,570 *l.* since the beginning of the works. On the Kistna Delta System the expenditure was 9,383 *l.*, bringing the total to 472,973 *l.*, and on the Cauvery Delta System a great deal of good work was done in training and embanking the rivers. As regards irrigation works carried out from ordinary revenue, considerable progress was

made on the Nandial Tank, and also on the works connected with the Cambum Tank and its channels. Work at the Madras waterworks was confined to what was essential to security. IRRIGATION.

The Madras Irrigation and Canal Company was incorporated by an Act of Parliament, dated 11 May 1858, for the purpose of constructing and managing works of irrigation and navigation in various parts of India. A portion of the scheme was begun in 1863, and virtually completed in 1871; but the canal has been as yet a failure financially, the returns from irrigation and the sale of water having been insignificant, compared with the capital outlay. Up to the end of 1876-7 the capital outlay had reached 1,370,990 *l.*, on 1,000,000 *l.* of which the Indian Government has guaranteed interest at the rate of 5 per cent. The causes of the continued financial failure of the scheme appear to be the unprofitable outlay of about 350,000 *l.* on works of navigation, which, owing to the want of capital on the part of the Company, have not yet been utilised; the scarcity of labour in the district, and the high rates necessary in order to attract it from a distance for the construction of the canal, whereby the capital outlay was increased; and, finally, the cost of transport of produce to a market by the indifferent roads of the country, and the check thus given to the extension of irrigation for the growth of rice, which is not an article of large local consumption. The impetus given to irrigation in 1876-7 by the failure of the monsoon rains led to a considerable augmentation of the revenue receipts, which amounted to 9,252 *l.*, while the working expenses were 12,279 *l.* The payments on account of the guaranteed interest for the year were 49,983 *l.* Bombay.

In the Southern Deccan and Kárnátic districts of the Bombay Presidency, the severe drought involved Government in a large expenditure. Nineteen new irrigation works, undertaken within the last few years, were pushed on or completed. These works command a total area of 162,137 acres, of which 16,000 acres, as compared with 6,285 acres in the previous year, were irrigated. The new famine relief works, when completed, will command a total area of 550,000 acres, and other sanctioned works in progress will provide for a further area of 104,000 acres, making a grand total of 816,137 acres, or 1,275 square miles. The total culturable area of the dry zone of territory that extends behind the Sahyádri hills from Násik southwards is 26,000 square miles. Over the whole of this belt of land the average rainfall is less than 30 inches, and irrigation is an absolute necessity.

At the end of 1876 the length of open railway in India was 6,832¾ miles, of which 5,897 belonged to the lines owned by the eight guaranteed railway companies, and 935¾ to the State lines. Twenty-seven millions of passengers, and six million tons of merchandise were conveyed during 1876 on the guaranteed lines, and three and a half millions of passengers, and half a million of tons of merchandise on the State lines. With regard to the guaranteed railways, the gross receipts during the year were 8,300,000 *l.*, and the expenditure was 3,900,000 *l.*, the net earnings being 4,400,000 *l.*, while surplus profits were earned in the case of four railways to the amount of 833,170 *l.* Exclusive of the Muttra-Háthras, Pátri, and Gaekwar of Baroda's lines, for which no returns have been received, the gross receipts of the State railways during 1876 were 425,000 *l.* and the expenditure 300,000 *l.* A brief account is given in the following paragraphs regarding the lines in each of the presidencies and provinces. RAILWAYS.*

Of the *East Indian Railway* system the length is 1,503¼ miles, of which 410½ are laid with a double line of rails. Up to 31 March 1877 the amount of capital withdrawn by the Company from the Government Treasury was 30,572,988 *l.*, or at the rate of 20,337 *l.* per mile. Over 7,000,000 passengers were conveyed in 1876, the increase over the numbers in the preceding year being about 350,000. There was also a corresponding increase (amounting to 450,000 tons) in the goods traffic, the aggregate weight of merchandise (including minerals) conveyed exceeding 2,100,000 tons. The gross receipts rose from 2,500,000 *l.* to 3,000,000 *l.*, and the net earnings from 1,550,000 *l.* to nearly 2,000,000 *l.* Surplus profits were realised in both half-years, amounting to 651,664 *l.*, and divided between Government and the Company. Considerable economy in the Bengal.

* Fuller information is given in the Reports on Railways in India, prepared by the Government Director, and annually presented to Parliament.

RAILWAYS.

use of fuel was found to result from the granting of rewards to engine-drivers. Kurharballee and Serampore collieries yielded 161,504 tons of coal in 1875, and 238,848 in 1876.

The length of the *Eastern Bengal Railway* is 159 miles. Withdrawals of capital by the Company from the Government Treasury amounted to 3,094,313 *l.* on 31 March 1877, being at the rate of 19,461 *l.* per mile. In 1876 the gross receipts were 302,771 *l.* and the expenses 140,868 *l.*, the net earnings being 161,903 *l.* Surplus profits amounting to 35,347 *l.* were earned in the first half year. The Port Trust Commissioners' line, from Sealdah Station to the Strand, was opened in November 1876.

On the *Calcutta and South-Eastern (State) Railway* there was a marked improvement in the passenger traffic, principally due to the inducements offered to *dhobies*, cloth merchants, and gardeners. A like improvement occurred on the *Nalháti (State) Railway*, but the large increase which had been anticipated in the grain traffic to famine districts was stopped by the inability of the East Indian Railway Company to take over goods from this railway, thereby causing considerable damage to the grain waiting at Nalhati for transhipment, compensation for which had to be paid by the State line. The temporary famine line from Bazitpore to Durbhunga, called the *Tirhoot (State) Railway*, was made permanent, and a branch constructed from Semastipore junction to Mozufferpore, while a branch from the East Indian Railway station at Barrh to Nawada Ghât was begun at the close of 1876-7. Work progressed on the *Northern Bengal (State) Railway*, and 127 miles of rails were laid.

Surveys connected with the lines of light railways in the Moorshedabad, Nuddea, Jessore, and 24-Pergunnahs Districts of Bengal, were completed during the year.

N. W. Provinces and Oudh.

The length of the *Oude and Rohilkund Railway* is 543¾ miles, and the withdrawals of capital to 31 March 1877 amounted to 5,513,637 *l.*, or 10,140 *l.* a mile. The earnings in 1876-7 were 340,683 *l.*, the working expenses 218,102 *l.* and the net profits 122,581 *l.* The goods traffic along this line was affected by large exports of grain to the famine districts of Madras and Bombay, and by the demand for grain for export to England.

During the year the *Rajputana (State) Railway* was in working throughout from Agra and Delhi to Nasírabad, a length of 392¾ miles. When fully completed it will have cost about 2,950,000 *l.*, or 7,300 *l.* a mile. This estimate includes fencing the whole line, additional rolling stock, large central offices for the whole of the Rajputana system of State railways, central workshops for 700 miles of railway, about 3 miles of broad gauge line, with a costly bridge over the Jumna to bring the East Indian Railway traffic into Agra, and to connect it with the Sindia Railway, and a large and commodious passenger station for broad gauge traffic at the Agra fort station. The earnings rose from 174,696 *l.* in 1875-6 to 232,959 *l.* in 1876-7, and the working expenses from 111,869 *l.* to 152,362 *l.* The net profits rose from 62,827 *l.* to 80,597 *l.*

The *Muttra and Háthras Railway* was the first of the light lines constructed in the North Western Provinces. It is about 30 miles in length, and was opened for traffic on 19 October 1875. In 1876-7 the net profits were 4·4 per cent. on the capital. A beginning was made of another light railway from Dildárnagar (on the East Indian Railway) to the bank of the Ganges opposite Gházipur, a distance of 12 miles. The work is being carried out with capital subscribed by the general public. Other light railways were in contemplation. These scattered lines are intended to be the nucleus, if they are found to answer their purpose, of a provincial system which will unite by a network of railways all the chief centres of trade and resort in the North Western Provinces.

Work on the *Sindia (State) Railway*, which runs from Agra to Gwalior, a distance of 75½ miles, was begun at the end of 1875-6. The line is on the broad or 5′ 6″ gauge, and is to be completed by 31 October 1880, at an estimated cost of 890,000 *l.* The bridge over the Chambal will be one of the most remarkable railway structures in India, and will cost about 290,000 *l.*

A revised set of rules for procedure in cases of railway accidents was drawn up and made applicable to all railways in the North Western Provinces.

Punjab.

The length of the Punjab section of the *Scinde, Punjaub and Delhi Railway* is 553¾ miles. In August 1876 two piers of the Sutlej bridge were scoured out and overthrown by the severe floods. Through communication was restored in

December in time for the heavy traffic consequent on the Delhi Imperial Assemblage. A very large quantity of stonework has since been added to strengthen the bridge; but both this structure and that over the Beas, with their small spans and single well piers, sunk to an insufficient depth, must always be a cause for anxiety, notwithstanding the costly stone protection which is being so largely provided. A considerable increase in the passenger traffic, chiefly of the third class, was mainly due to a slight reduction of fares. The number of stations is to be increased, especially toward the Delhi end of the line, and more trains will be run to accommodate and foster local traffic. Attention also has been directed to the deficiency of waiting-rooms for third-class passengers at stations. Shelter for goods is much wanted all along the line, and so is accommodation for the police and native menial staff. There was a very great increase in the goods traffic, especially in wheat and oilseeds; and the block of traffic all along the line was very serious, owing to the want of wagons, and the inadequate carrying power of the flotilla down the Indus; 600 more wagons have been ordered, and Government have sanctioned the purchase from the Baháwalpur State of an additional steamer and 2 more flats, at a cost of 14,000 *l.* Heavy charges for maintenance, and the high cost of fuel, render the working expenses of this line exceptionally high. RAILWAYS.

On the *Punjab Northern (State) Railway* a further section of the temporary metre gauge line from Wazirabad to the left bank of the Jhelum was completed for public traffic early in the year; and on 14 September 1876, the bridge over the Jhelum was formally opened, when railroad communication on the metre gauge was complete from Lahore to Jhelum, a distance of 103 miles. The success of the open line exceeded all anticipations, and the public demands far outgrew the traffic resources. Progress on the permanent broad gauge line was not so rapid as had been expected. Much work was done on the northern section (Mooltan to Sakkar, 273 miles) of the *Indus Valley (State) Railway*, but the progress on the southern section (Sakkar to Kotri, 224 miles) was not so satisfactory. The project for the bridge over the Indus at Sakkar was in abeyance, and this much wanted structure is not likely to be completed for some years to come.

The *Wardha Valley (State) Railway* was the most important public work carried on during the year in the Central Provinces, and, judging from the rapid increase of receipts on the open portion of the line, there was every prospect of its proving remunerative. A good deal of work was got through in surveying routes for the *Chattisgarh (State) Railway*; but the Government has decided not to undertake this line, and a question is now pending whether certain concessions applied for by a private company can safely be sanctioned by Government. Central Provinces.

The *Rangoon and Irrawaddy Valley (State) Railway* was pushed on rapidly during 1876-7, and was publicly opened to traffic on 1 May 1877. It connects Rangoon and Prome, a distance of 163 miles. Its opening has caused a very appreciable increase of population in the tracts through which it runs, and has attracted to its neighbourhood numbers of families from the out-lying and remote districts. Estimates for the extension from Prome to Allanmyo (42 miles) are under consideration. A survey of the *Rangoon and Sittang Valley (State) Railway* (161¾ miles) was in progress during 1876-7. British Burma.

The prospects of the *Khamgaon Railway* are not altogether favorable. It is chiefly dependent on the cotton trade, a considerable portion of which has been diverted to the town of Shegaon, 11 miles distant, on the main line of railway. The earnings in 1876 were only 2·10 per cent. on the capital, as against 2·61 in 1875, and 2·86 in 1874. The *Amraoti Railway*, which, in addition to cotton, carries a large general traffic, earned 4·62 per cent. on its capital during 1876, as against 2·96 in 1875. Berar.

In the Madras Presidency the only railways are the two under the guarantee system. No State lines are in contemplation. During 1876-7 the railways performed an important part in the relief of the famine in Southern India. Madras.

The open mileage of the *Madras Railway* remained the same, viz., 854 miles of single and 3½ miles of double line, but in consequence of the heavy grain traffic entailed by the famine, it was decided to extend the double line to Arconum, 42½ miles from Madras. Up to 31 March 1877 the withdrawals of capital amounted to 10,074,945 *l.*, being at the rate of 11,742 *l.* a mile. The net earnings during 1876 were 232,283 *l.* No signs of general failure have been

RAILWAYS. yet shewn by the rails laid down in 1856. An agreement was settled to transfer for 2 years to the Government the maintenance of the telegraph wires. On 1 July 1876 the first-class passenger fare was raised from 15 pies to 18 pies a mile, and the second-class fare was altered from 8 pies by night, and 5 pies by day, to 7 pies a mile by all trains, while first and second class return tickets were made available for one month, irrespective of distance, on payment of a fare and a half. The results were increased receipts, but diminished numbers. Owing to the company's want of engine power and rolling stock to carry forward the enormous quantities of grain for famine relief, a block of traffic occurred at Raichore in January 1877. During the previous month no less than 59,000 tons of grain were carried by the Madras Railway.

On the *South Indian Railway* 172 additional miles were opened for traffic during the year, bringing the total length open on 31 March 1877 to 570 miles. The average cost of the open line, which is on the metre gauge, stands at 6,300 *l.* a mile, including the old broad gauge sections, which cost 8,500 *l.* a mile. The third-class passenger fare of 2 pies a mile, which has been in operation since 1 July 1872, has produced a great development of numbers; the filling of the carriages is very good, and the average number in a whole passenger train was higher in 1876 than on any line in India.

Bombay. On the *Great Indian Peninsula Railway*, a considerable reduction of the fares and rates was accompanied by a great increase in the receipts from both passenger and goods traffic to the amount of 300,000 *l.* The failure of the railway to meet the demands of the export and famine traffic in food grains, owing mainly to the supply of engine power being insufficient, entailed serious delay and inconvenience on the trade of Bombay.

An increase in the goods traffic of the *Bombay, Baroda and Central India Railway* was principally due to the grain export trade from Gujarát. The Bombay suburban traffic shews a marked increase in the number of third-class season ticket holders.

Of none of the 4 branch lines managed by the Great Indian Peninsula Railway Company (viz., the *Khámgaon*, the *Amráoti*, the *Wardha Valley*, and the *Nizam's*) were the accounts favorable; but the *Pátri* and *Gaekwar of Baroda's* branch lines under the management of the Bombay, Baroda, and Central India Railway Company, seem to be doing very well.

Besides the railways just mentioned there is in the Sind Division of the Presidency a section of the *Scinde, Punjaub and Delhi Railway*, 109¾ miles in length. Both passenger and goods traffic on this line shewed an increase during the year.

ROADS AND BRIDGES. Among road works, the improvement was completed, at the cost of the

Punjab. Mahárája of Kashmir, of the unmetalled road between Kángra and Ladakh over the Lacha Lang, as also was the survey of the proposed route up the Shyok Valley, to be also undertaken by his Highness. In December 1876 a bridge of boats was set up across the Indus at Khushálgarh on the line of road from Ráwalpindi to Kohát, which had been specially repaired with reference to the operations connected with the closing of the Kohát Pass.

Central Provinces. There were 860 miles of metalled and bridged roads in the Central Provinces, and steady progress was made with five important railway feeder roads. The recent great block in the railway traffic is a proof of the road facilities which exist for reaching the line. The increased demand for grain and oilseeds brought from all sides an immense amount of traffic; these supplies were warehoused in heaps at all important stations, and in many cases awaited carriage for months.

Madras. In the Madras Presidency the most noteworthy work of road communication was the tracing and partial opening out of an excellent ghát-road from the plains of Madura to the Upper and Lower Pulneys.

Bombay. During the year the road communication of the Bombay Presidency was greatly developed, the making and repairing of roads being the chief form of famine relief in some of the affected tracts. Of other than famine works the construction of a good road in the Panch Máháls, 43 miles long, from Godhra to Gohad, has developed a great export trade from Malwa, and made possible the successful extension of a branch line of railway from Anand to Páli, and probably, before long, to Godhra. In 1876-7 sixteen bridges and river crossings were completed, the chief being the Hope iron bridge across the Tápti at Surat, which was formally declared open for traffic on 1 May 1877.

MADRAS HARBOUR WORKS.

Great but not unexpected difficulties were met with in the summer of 1876 in the construction of the Madras Harbour Works; during May, June, and July heavy surf prevailed, the sea scattering the laterite used in the projection of the northern surf bank almost as fast as it was laid down. Sand also rapidly accumulated. Mr. Parkes was summoned from England, and he adopted a change from the original design. Concrete blocks roughly laid were used instead of laterite rubble for the portion of the groyne within surf limits, while, at the junction of the rubble bank with the concrete blocks, the slopes of the laterite were faced with small concrete blocks to ensure greater stability, By the end of the official year 297 feet of rough concrete blocks were laid, and the length of the northern surf bank from the shore advanced in all to a length of 1,175 feet.

PAUMBEN CHANNEL.

The work of dredging out Paumben Channel was continued in 1876-7, 117,257 cubic feet of débris being removed, and 71,053 cubic feet of stone raised. The depth of the channel at high tide is now 14 feet, but greater depth could not be procured by the means available. A steam dredge was therefore in course of construction at a cost of about 1,300 *l.*

LIGHTHOUSES. British Burma.

At the close of 1876-7 there were 8 lighthouses on the coast of British Burma, including the Oyster Reef Lighthouse off the port of Akyab, lighted for the first time on 1 May 1876. Notwithstanding so good a system of coast lights, several accidents to vessels occurred during the year. On 1 August 1877, the Krishna Shoal Lighthouse, suddenly disappeared, with the 8 native light-keepers who were on it at the time.

Madras.

A lighthouse was under course of construction during 1876-7 at Vakalapudi in Nellore. The foundations and basement were completed, and it was expected that the building would be executed by the autumn of 1877.

MARINE SURVEYS.

During 1876-7 the surveying operations of the Marine Survey Department were confined to the Burma coast, Chittagong and Madras. The Moulmein River and its approaches were surveyed in detail. Cholera again interfered with the work of the detail survey of Akyab; and the same cause prevented a complete examination of the mouth of the Karnafuli or Chittagong River. The survey of Madras roadstead was undertaken in connexion with the harbour works; and about $4\frac{3}{4}$ miles of the coast north and south of the screw-pile pier was surveyed, but operations were much delayed by the want of an efficient tide-gauge and the unsatisfactory state of the steam cutter employed. Commander Taylor was deputed to Goa, Karwar and Marmagao, and carefully examined each of those harbours. Much good work was done by the drawing branch, and many charts were published. The issue of notices to mariners was continued with punctuality, and the list of Indian lights kept up to date. The annual return of wrecks and casualties was also taken systematically in hand. The cost of the department during the year was 14,048 *l.*

WRECKS AND CASUALTIES.

A larger number of *recorded* wrecks and casualties is exhibited on the Indian Wreck Chart for 1876 than for any year since the Chart was first compiled in 1865. Some portion of the increase is doubtless due to the disastrous cyclone of 31 October, but the greater part may be attributed to improved means for obtaining information, and it is therefore not necessarily to be supposed that 1876 presents *actually* a larger catalogue of disasters. There were 31 wrecks of British vessels, 1 Italian, 1 French, 1 Norwegian, 1 American, and 11 native craft, or a total of 46 ships of 23,866 tons, and a loss of 92 lives. There were 49 casualties to British vessels, 4 to Italian, 5 to French, 1 to American, and 5 to native craft, or a total of 64 ships, and a loss of 4 lives. Outside the limits of the Wreck Chart, 2 fearful catastrophes occurred in the Red Sea to ships conveying pilgrims: the *Javad* on 22 January, while on a passage from Jedda to Bushire, was totally wrecked on an outlying reef off Lith, and 428 pilgrims were drowned, only 15 lives being saved; and the *Hydree* was totally wrecked on a reef about 7 miles from Jedda while sailing to that port from Calcutta, and some of the crew and about 400 pilgrims perished. The principal cause of the wrecks of native craft is the rottenness of the vessels, which are very badly constructed, and certainly not fit to meet the ordinary monsoon weather, while many of them carry no charts at all, and, being under no particular control or regulations, go to sea ill-found in every way. Incorrectness of charts is a very frequent cause of disasters at sea.

CALCUTTA PORT TRUST.

The Commissioners of the port of Calcutta now fulfil duties of a three-fold character, viz., port improvement, port conservancy and harbour management, and the management of the Hooghly floating bridge. 39,760 *l.* was laid out on new works during 1876-7.

BOMBAY PORT TRUST.

Compared with the figures for 1875-6, the revenue in 1876-7 derived by the Bombay Port Trust from all sources declined from 156,564 *l.* to 148,444 *l.*, and the expenditure also fell from 73,917 *l.* to 72,842 *l.*, the net revenue therefore decreasing from 82,647 *l.* to 75,602 *l.* According to the Master Attendant's report 815 vessels, aggregating 870,284 tons, came into harbour, the number of sailing vessels being 265 and of steamers 550.

BENGAL MARINE.

In 1876-7 the Bengal Marine possessed 47 vessels of various sorts, besides 10 famine steamers and 13 flats. The pilot-vessels and light-vessels were in good condition. A scheme for the reorganisation of the pilot service came into operation. The strength of the service was fixed at 70 members. Leadsmen apprentices are now usually selected in England from the training ships *Worcester* and *Conway*. The system of quarterly examinations for certificates of competency for masters, mates, and engineers of the mercantile marine worked well during the year.

BOMBAY MARINE.

The vessels of the Bombay Marine were, as usual, employed on miscellaneous services; the *Amberwitch* in connexion with the Indo-European Telegraph Department; the *Dalhousie* in the transport of troops; the *May Frere* and *Quangtung* at Aden; the *Comet* and *Hugh Rose* in the Persian Gulf (the latter in carrying out quarantine arrangements at Bushire); and the *Jhelum* and *Mooltan* in Sind. Except during a short cruise in April, the turret ships *Abyssinia* and *Magdala* lay in Bombay Harbour. Six new boats were being built for the Salt and Marine Departments, and 37 vessels were docked. The expenditure was 185,242 *l.* and the receipts 69,616 *l.*

POST OFFICE.

The increasing income of the Postal Department of India has now placed it in a position from which measures of reform can be safely and advantageously initiated. Those effected during 1876-7 comprised the admission of British India into the General Postal Union from 1 July 1876; the consequent revision and reduction in the rates of foreign postage; the extension of postal facilities to the rural population; the continued absorption of the district *dâk* lines by the Imperial post; and the partial (since made universal) abolition of redirection postage. Successful operations were carried out against certain gangs organised for systematic fraud through the agency of the Post Office. Postal receptacles increased considerably; post offices from 3,661 to 3,852, and letter-boxes from 4,985 to 5,454. The strength of the establishment rose from 25,901 to 27,469. Altogether, the length of the railways, roads, &c. over which the mails were regularly conveyed was 58,370 miles. An increase of more than three millions occurred in the total number of letters, newspapers, parcels and packets received for delivery, which aggregated 122,541,753, letters numbering 110,051,340, newspapers 9,880,679, parcels 990,661, and packets 1,619,073. Including the non-postal branches, the department had a gross revenue of 782,320 *l.*, while its expenditure was 744,281 *l.*

TELEGRAPHS.

There were 39,700 miles of wire, and 17,840 miles of line belonging to the Indian Government Telegraph Department in India and Ceylon at the close of 1876-7, while the number of signal offices was 234. Every year has shewn a great increase in the number of messages, which aggregated 1,166,833 in 1876-7, as compared with 958,408 in the previous year, and 373,832 in 1867-8. Thus in only 9 years the number of messages has more than trebled.

At the end of 1876-7 the system of the Indo-European Government Telegraph Department embraced (1) the Persian section of 792 miles of land line, and (2) the Persian Gulf section, which included 1,732 miles of submarine cable, and 718 miles of land line on the Mekran coast. The only increase during the year was a length of three miles due to alteration effected in the Mekran coast line. Two wires run throughout the entire length of the land lines, and there is besides a third wire attached to the posts in the Persian section. This third wire is according to treaty devoted entirely to Persian local

work, and is not an intrinsic portion of the Indo-European system; but it is a valuable aid in cases of accident to the other wires. During 1876-7 the substitution of iron for wooden supports was brought to a completion in the Persian section, and the cases of wilful damage, which in former years caused excessive trouble and anxiety, were comparatively few and trifling, partly owing to improved conservancy arrangements, and partly to the disappearance of some of the greatest culprits in the way of pole-shooting. There were two instances of wilful damage to the main cables in the Persian Gulf, and some of wire-cutting on the Mekran coast line. Interruptions on the Persian section aggregated as follows: one wire, 19 days 23 hours 13 minutes; two wires, 3 days 15 hours 30 minutes; three wires (involving a total cessation of communication), 20 hours. The longest period during which communication was entirely suspended was 5 hours 10 minutes on 5 October 1876. Violent gales caused the complete breaks. In the Persian Gulf section the interruptions amounted on the cables to 30 days 1 hour, and on the Mekran coast line to 14 days 9 hours 13 minutes; but the existence of the double chain of communication prevented any stoppage of the traffic, and there was scarcely any appreciable delay, one or other of the lines being always in good order. But although the total interruptions in Persia and the Persian Gulf did not arrest traffic for more than 20 hours during the entire year, yet the business of the department was stopped for upwards of 20 days by the frequent breakages on the Gitomir-Tiflis section of the Indo-European Telegraph Company's wires. The aggregrate interruption of traffic between England and Karáchi amounted therefore to 21 days. Speed was well maintained throughout the year, the rate at which the traffic was transmitted averaging only 1 hour 35 minutes per message between the United Kingdom and Calcutta. This was the highest speed ever reached, and exceeded by eight minutes the pace attained on the Suez route. The tariffs and regulations of the St. Petersburgh Convention remained in force during 1876-7, the charge between India and Europe by the Tehran and Suez routes being 2½ rupees per word. The introduction of the word tariff, which came into force on 1 January 1876, appears to have been much appreciated by the public. Messages under 10 words in length formed 35 per cent. of the whole number. Altogether, 45,205 messages (containing 883,913 words) were transmitted by the departmental cables. Of these messages 37,415 passed between Europe and India and 4,950 between Europe and the far East. The numbers sent by the Red Sea route during the same period were 56,862 and 23,977 respectively, or a total of 80,839. According to the Finance and Revenue Accounts for 1876-7 the revenue receipts of the Department were 87,609 *l.*, and the charges 72,702 *l.*

TELEGRAPHS.

VII.

MINERAL RESOURCES.

MINERAL RESOURCES.

Bengal.

THE Burdwan Division of the Bengal Presidency contains the collieries at Raneegunge and its vicinity, the stone quarries at Sassunia, and the chalk quarries at Bankoora. The coal trade of Raneegunge was dull during 1876-7, but the Sassunia stone quarries were being more extensively worked. A discovery has been made in Raneegunge of lead and gold ores. The lead ore is reported to be very rich, and the seam very thick; but the gold ore is the reverse, and probably would not repay working. Some mineral wealth may exist in the range of hills in the east of the Chittagong Division; but nothing has been discovered as yet. There are one or two insignificant stone quarries in Orissa. Iron ore of good quality is found in a nodular form in many parts of the Chota Nagpore Division, and the iron-stone beds of the Karanpura coal-field, to the south-west of Hazáribágh, contain a high percentage of the useful quality of iron. No attempt, however, has yet been made to work the ore on a large scale, and smelting is carried on only by rude aboriginal methods. Five coal mines are now at work in Hazáribágh, and the resources of the district in this respect are not yet developed to their full extent. The rich coalfields of the Karanpura Valley are still untouched by systematic mining; but the locality is so difficult of access that there is no immediate prospect of its coal being brought into the market.

Assam.

Information was collected regarding the former gold-washing operations of Assam, where at one time a great many streams, particularly those flowing from the Himalayas, yielded gold in considerable quantities. Although there was no reason to suppose that these rivers had all lost their auriferous character, yet the industry appeared to have been gradually extinguished as labour became dearer, and working on the tea-gardens was found a more profitable occupation than gold-washing. The last licence that was taken out for the purpose was in 1874-5, and it fetched only 7 rupees.

N. W. Provinces.

In 1855-6 the manufacture of iron was first undertaken by Government in Kumaun. In 1861 the works were transferred to a private company known as the *North of India Kamaun Iron Works Company*. In 1872 the Company closed operations, and in 1875 the Government of the North-Western Provinces took over the works as a provincial arrangement for 3 years for the manufacture of iron in connexion with the Roorkee workshops, the works to be either restored to the Company at any time within that period, or purchased by Government at a fair valuation. A capital of 5,000 *l.* was set aside for restoration of the works, and 2,000 *l.* for working expenses. In 1875-6 operations were resumed, and to the close of 1876-7 about 3,200 *l.* was expended on restoration and 800 *l.* on working expenses. The results from various causes were unsatisfactory, but new arrangements gave better promise for the future.

Central Provinces.

Work was carried on systematically at the Warora Collery, in the Central Provinces, during the whole year, the total outturn having been 10,700 tons of coal. Less than half the quantity of coal was raised than might have been, for the railway company could not supply wagons, and, owing to their being irregularly supplied, the cost of the coal raised was enhanced. Consequently the colliery was worked at a loss of 2,682 *l.* The Great Indian Peninsula Railway Company has since been taking at the rate of 3,000 tons a month, and some 3,500 tons a month were being raised. The conduct of the native workmen was good. Explorations in the Nerbudda Valley had not been successful; but, as it was improbable that coal should be confined to one limited area in the vicinity of Mohpani, the Chief Commissioner did not consider the expenditure (7,875 *l.*) a matter for regret. Twelve out of 14 borings have been abandoned. One of the two remaining has reached 719 feet, the deepest ever attempted in India.

British Burma.

Coal is found in British Burma up the Tenasserim river in the Mergui. It is of inferior quality, and unlikely to be worked so long as wood fuel is plentiful. The tin mines of Mergui have long been known; they are not of great value, the whole outturn of 1875-6 and 1876-7 being worth only about 6,000 *l.* Ramree, an island a few hours distant by steamer from Akyab, abounds with petroleum of good quality, and this article is also known to occur on the Greater

and Lesser Borongos, large islands directly opposite Akyab. There is much wealth in the vicinity of Akyab in petroleum, coal, steatite, and perhaps other minerals. The workings for petroleum in Ramree are carried on entirely by natives on a very small scale and in a rude primitive way. MINERAL RESOURCES.

The supply of soda from the Lonar Lake, in the Hyderabad Assigned Districts, is in excess of the demand, but, owing to the lake being situated far from the line of railway, it is not possible to realise any large revenue. The receipts during 1876-7 amounted to 547 *l.*, as against 394 *l.* in 1875-6. Berar.

There were 93 iron mines in the Shimoga, and 52 in the Chitaldroog district of Mysore during 1876-7. Mysore.

In the Madras Presidency a licence was granted during 1876-7 to a Mr. Lavelle to prospect for minerals within a space of 10 miles in the neighbourhood of Cuddapah, but the result was not known. Experimental workings of gold quartz reefs in Wynaad were continued. The prospects are sufficiently good to induce speculators to venture capital in the hope of ultimate success. In the interests of the State, it was deemed expedient to prohibit the sale of lands known to possess quartz reefs, or alluvium containing gold. Madras.

VIII.

MANUFACTURES.

Cotton. Bengal.

All over the Burdwan division of the Bengal Presidency there are country looms for cotton, and in each district a large number of weavers turn out a good quantity of cotton cloth, which not only meets local wants, but also supplies the Calcutta market. Country cloth is made throughout the Dacca division; but the industry is a failing one, as English piece goods are rapidly supplanting it. In Tipperah, cloth-making, which used to give employment to about one-tenth of the population of the district, is rapidly on the decline, the Mahomedan weavers having taken to agriculture, their cloth not being able to compete with Manchester piece-goods. Coarse cotton cloths are woven in small quantities in all parts of the district of the 24 Pergunnahs in the Presidency division, and a fine colored description in the Diamond Harbour sub-division. Cotton goods are manufactured to a large extent in the Nuddea district; the looms in the Chooadanga sub division still supply a fifth of the whole local consumption of the sub-division. There is no doubt that, as in other parts of India, the competition of Manchester has had a most injurious effect on this trade, and that the gradual introduction of machinery will tend to still further destroy it.

Central Provinces.

The Empress Spinning and Weaving Mills in the Central Provinces were opened on 1 January 1877. These mills have 550 looms and 30,000 spindles, but were not then in full operation.

Bombay.

In the Bombay Presidency the steam manufacture of yarn and cloth from cotton, silk, and jute steadily continued in 1876, in which year there was an increase of six factories with a total of 143,161 spindles and 1,612 looms. At the close of 1876 over the whole Presidency there were at work 41 mills, 25 for both spinning and weaving, and 16 for spinning only, with a total of 961,672 spindles and 9,587 looms, and giving employment to about 30,000 workmen. Thirty-eight of the factories were for cotton yarn and cloth, two for silk, and one for jute and hemp. Twenty-nine of the mills were in Bombay, and 12 in other parts of the Presidency. The sea exports of Bombay cotton yarn and cloth have rapidly developed. Yarn shews an increase from 1,802,863 lbs. (value 97,162 *l.*) in 1872-3 to 7,828,729 lbs. (value 363,233 *l.*) in 1876-7, and grey cloth from 4,780,834 lbs. (value 75,495 *l.*) in 1872-3 to 7,914,324 lbs. (value 120,501 *l.*) in 1876-7. The earnings of workers, all of whom are paid by the piece, were high. Boys made in a month from 14 *s.* to 1 *l.*; women from 16 *s.* to 1 *l.*; and jobbers from 3 *l.* to 6 *l.* 10 *s.*, and in some cases as much as 8 *l.* As the trade has been much depressed since the close of 1876-7, a general decline in the rate of payment was not improbable.

Silk. Bengal.

During 1876-7 the silk trade of India unhappily continued to languish, and it had no present prospect of improvement. Its extinction would seriously affect a considerable section of the population in the silk-producing districts of Bengal, which province is the chief seat of sericultural industry in India, and to them the stagnation of the trade is now a source of acute suffering. Possibly the industry of the spinning of the silk of the mulberry worm (*Bombyx mori*) may be hereafter replaced by one in the silk produced by the *tasar* or undomesticated worm; but there is little sign of the creation of such an industry. Bengal produces *tasar* silk on a small scale, the exports being worth about 32,000 *l.* a year, but much is still required before this silk can be woven into a fabric which will commend itself to the European consumer, and experiments in this direction have not as yet had any practical result. Silk is the most important manufacture of the Moorshedabad district, but the industry is fast decaying. There was a temporary improvement in prices in 1876-7, owing to a comparative failure in the European silk having caused a demand for the Bengal article; but a reduction of 50 per cent. was considered inevitable. The silk manufacture in Rajshahye slightly revived during 1876-7, owing doubtless to the failure of the outturn in China. In Bogra the breeding of silkworms began again, owing to a temporary increase in the demand for silk in Calcutta; but all the cocoons go to Taherpore, in

Rajshahye, for sale. The woven silk of Bogra, known as *garrad*, is so little in demand that the weavers keep none in stock, and only make it to order. Silk, which in Maldah is an important staple, was more profitable during the year, both to the manufacturer and to the rearer of cocoons. A coarse kind of silk is made in Bogra and Rungpore from the castor-oil worm. It is manufactured chiefly for private use among the higher classes, and not for sale. SILK.

Arrangements were made by the Government of the North-Western Provinces to place on a better footing the sericulture in Dehra Dún. Experiments hadhitherto been a failure in consequence of defective management. N. W. Provinces.

Sericulture continued to receive attention in the Gurdaspur, Hoshiárpur, and Kángra districts of the Punjab. The inhabitants, including the Kashmir population, who have been much impoverished of late years, have become alive to the fact that there is a ready sale for all the large quantity of good cocoons that can easily be produced. Further successful experiments were made in the rearing of the *tasar* silkworm. Punjab.

The rearing of silkworms, which might otherwise be a large and profitable industry of British Burma, is interfered with by the prejudice so prevalent among Buddhists against the destruction of animal life. The silk produced is of a common rough texture. Few silk goods are manufactured in the province. British Burma.

In the Bombay Presidency Captain G. Coussmaker conducted during the year some interesting experiments on the production of *tasar* silk. In the forests of the Konkan the forest tribes are ready to collect large quantities of cocoons, and labourers in the Márathi districts are willing to rear the worms and prepare the silk for the mills. In ordinary seasons a plentiful and cheap supply of the raw material can apparently be relied on. The present difficulty is not one of supply, but of demand. Bombay.

Jute manufactures are almost entirely confined to Bengal; more than 99 per cent. of the shipments to foreign countries during 1876-7 were despatched from Calcutta. This industry is being rapidly developed, as is shewn by the wonderful increase in the foreign trade, which has risen in value from 188,859 *l.* in 1871-2, to 719,478 *l.* in 1876-7. In the latter year there were exported 29,275,590 power-loom bags, 3,583,955 hand-loom bags, 6,017,659 yards of cloth, 4,535 cwt. of rope and twine, and 150 cwt. of other sorts of manufactures. California took 12,768,079 corn sacks as compared with 2,942,050 in the previous year. The Calcutta mills also did a very active business during the year in the manufacture of bagging for the great quantities of rice thrown into the famine-stricken districts. Bengal furnishes most of the bags used in trade, sending great quantities to Burma for the package of rice, and to Bombay and Madras, especially the former, to be used in the packing of wheat, rice, and seeds. Returns of the coasting trade of India shew that 37,175,837 gunny bags were exported in 1876-7, as compared with 34,184,998 in 1875-6. JUTE.

A flax mill, started by an enterprising firm, is now at work in Calcutta on the limited liability principle. Its chief manufactures consist of rope, twine, and canvas from the sunn hemp (*Crotalaria juncea*), but the agents have succeeded in working up good fibre from the stalks of the flax grown in India, and propose to continue operations. If the experiments prove successful, a new and important industry will have been created in India. Hitherto the stalks of the Indian flax plant (which is grown only for its seed) have been wasted, the cultivator either throwing them away, burning them, or putting them on his land as manure. A price of from 8 to 12 annas the maund is a sufficient inducement to the cultivator to bring the stalks to the flax factory in the condition required for manufacture. This low price would not admit of the transit of the stalks to any mill situated a long way from the place of production, but if mills are started in the linseed-producing districts the economic results of the experiments may be of great importance. India possesses many other fibre-producing plants, the most valuable being the rhea (*Böhmeria nivea*), Manila hemp (*Musa textilis*), and what is commonly called the aloe (*Agave Americana*). Rhea is the queen of vegetable fibres, surpassing all others in lustre, silkiness, strength, and durability. It flourishes in India wherever it can get good soil and plenty of water, and is indigenous in Assam and parts of Burma and Bengal. Its cultivation in the North-Western Provinces and the Punjab has been completely successful; but the cost of the production of the fibre has hitherto been FIBRES.

FIBRES. prohibitive to its general use. Six years ago the Government of India offered a large reward for the invention of a machine adapted for the treatment of the fibre, but only one imperfect machine was submitted. The offer has now been renewed with more favorable conditions to competitors, and the trials are to be held at Saharunpore in August 1879. No attempt has yet been made to utilise the *Agave* and the *Musa textilis*, but the Government of India has drawn the attention of the local governments to their merits.

MISCELLANEOUS MANUFACTURES. Tanning is an industry for which India has ample and peculiar capacity, and with the removal of the export duty in 1875 it has been able to attain rapidly a state of prosperous development, the value of the exports of tanned hides and skins having trebled in two years, with every prospect of a further great increase.

Bengal. A patent has been taken out for a process, now under trial at one or more factories in Bengal, by which it is claimed that the quantity of indigo obtained from the plant will be increased and the quality improved. Hitherto the quality has varied immensely from year to year, and it is quite certain that there has been great waste in manufacture, the coloring material yielded by the plant being by no means fully utilised.

Oudh. Here and there in Oudh a little cloth is made, and some brass pots are manufactured at Newulganj and other places. Formerly the weavers of Tanda used to produce the most delicate muslin; but now their looms are seldom used, except in the preparation of the coarsest cloths.

Punjab. The estimated value of the manufactures of the Punjab rose from 5,398,282 *l.* in 1875-6 to 5,517,135 *l.* in 1876-7, notwithstanding a considerable decrease under cotton (from 2,008,558 *l.* to 1,750,557 *l.*) and shawls (from 133,634 *l.* to 89,651 *l.*), due to the larger consumption of European cotton cloth and the decline in the Indian shawl trade. The value of gold and silver lace manufactured advanced from 329,406 *l.* to 562,705 *l.* In former years the shawl industry was most important. French agents used to reside at Amritsar and at Srinagar in Kashmir, for the purpose of ordering shawls, superintending their manufacture, and making money advances to the weavers; but the war of 1870-1 caused a sudden collapse in the trade, and a change in fashion gave it almost its death-blow. Simultaneously with the loss of its French customers it also lost a considerable section of its customers in India. Formerly every respectable native, or, at any rate, every native who asserted his respectability, thought the possession of a Kashmir shawl or shawls was essential. But in these days the wearing of shawls is not by any means so universal as it was some years ago, and in Bengal and other provinces the importation of cheap English woollen shawls has completely driven out the Kashmir hand fabrics from hundreds of households, and the shawl weavers of Amritsar and Kashmir are now in a very bad way. A manager of a brewery in the Punjab has begun the manufacture of bottles at Rawal Pindi under competent European supervision. Materials for glass abound in the province, which is well adapted for its successful manufacture. Soap of the very best quality could also be manufactured in the Punjab or the North-Western Provinces, with a prospect of great profit. Tallow, oil, potash and soda are plentiful; and a large soap-boiling establishment, managed as are those at Marseilles, and turning out hard economic soaps of a neat appearance (in lieu of the present rough, unsavoury and unsightly article of native make), would be a successful speculation, and vastly improve the sanitary condition of the country.

Central Provinces. Samples of coal, iron, limestone, and slack have been sent from the Central Provinces to England for experiment since the close of the year. If success is attained, it is possible to look forward to a great iron industry being established at Warora.

A small attempt was made during the year to determine the cost of manufacturing paper stock from the bamboo fibre of the Central Provinces. Before doing more, it was intended to wait the result of similar experiments, with suitable machinery, in British Burma.

British Burma. The main industries in British Burma are those connected with the rice and timber trades. In 1876-7, there were about 47 steam mills in the province, chiefly at Rangoon, for the preparation of rice for shipment to Europe. Improved machinery for polishing the grain was introduced during the last two years, and a trade was gradually springing up in white rice ready for table use.

MISCELLANEOUS MANUFACTURES.

The chief timber trade is carried on at Moulmein, where a number of steam saw mills are employed. With the introduction of iron in the construction of ships, the local shipbuilding trade has almost died out in the province, no vessels of any large size having been constructed in either 1876-7 or the previous year. Several native craft, however, were built and registered. English and Chinese earthenware has to a great extent superseded the domestic use of lacquered articles, the manufacture of which is a peculiar industry of the Burmese. Umbrella-making gives employment to a number of persons. Burmese gold and silver ware is still much admired. A factory, established at Rangoon for making candles from the paraffin extracted from the earth oil produced in Upper Burma (which mixed with stearine forms an excellent candle), was not in full work during 1876-7; but its outturn has since been very large, and threatens seriously to affect the import trade. Mineral oils are now purified and distilled at the same works, and find a good local sale, while a great quantity of oil for burning is sent to Calcutta, where it enters into brisk competition with American petroleum. Cigars are manufactured in the province with tobacco obtained from Bengal and Madras. A very small portion of this tobacco is returned to Bengal in the form of cigars, but the bulk of it is consumed by the Burmans, who (men and women alike) are seldom without a cigar in their mouths. The manufacture is general, the cigars being made in most households by the women.

Mysore.

The estimated value of manufactures (including coffee) in Mysore rose from 595,094 *l.* in 1875-6 to 669,157 *l.* in 1876-7. The increase was almost entirely under brass and copper. Coffee shewed a heavy decline from 317,143 *l.* to 220,779 *l.*

Bombay.

Besides the weaving of cotton and woollen goods, which is nearly universal, and dyeing, there are a few special industries in the Bombay Presidency. In the Kaira districts of Gujarát cotton-printing is carried on, and native soap and glass are made; in Surat much skill is shewn in gold and silver lace, *kinkháb*, inlaid work, and ivory ornaments and toys; and in Poona there is some trade in clay figures descriptive of castes and occupations, beside paper-making. Sandalwood articles and pottery are to some extent exported from Kanara, and pottery, coir, and culinary utensils from Ratnágiri. A large distillery at Uran supplies the Bombay market. At Yeola, in Násik, there is a large trade in finer cloth, especially of silk with woven borders of gold and silver thread.

IX.

TRADE.*

SEABORNE TRADE.

An analysis of the seaborne trade of British India during 1876-7, as compared with 1875-6, gives the following facts.

Government transactions.

Taking the Government transactions, before passing to the general trade, we find that the imports (entirely stores) rose from 1,778,988 *l.* to 2,073,454 *l.*, and the exports (chiefly treasure sent to Aden, Bagdad and Mekran to pay the establishments) rose from 131,182 *l.* to 139,577 *l.*, the total Government transactions rising from 1,910,170 *l.* to 2,213,031 *l.*

Private Foreign Trade.

As regards the private foreign trade, the imports of merchandise fell from 37,112,668 *l.* to 35,367,177 *l.*, while those of treasure rose from 5,300,722 *l.* to 11,436,118 *l.*, the total imports rising from 42,413,390 *l.* to 46,803,295 *l.*; exports (including re-exports) increased under both heads, merchandise and treasure, in the former case from 58,045,405 *l.* to 60,961,632 *l.*, in the latter from 2,115,144 *l.* to 3,942,580 *l.*, the total exports increasing from 60,160,549 *l.* to 64,904,212 *l.* It will be seen that the exports of merchandise in excess of the imports rose from 20,932,737 *l.* to 25,594,455 *l.*, and that the imports of treasure in excess of the exports rose from 3,185,578 *l.* to 7,493,538 *l.*, the net excess of exports therefore advancing from 17,747,159 *l.* to 18,100,917 *l.* The prominent points for consideration from these figures are, (1) The very large amount of the total transactions in 1876-7, which shew an aggregate trade of imports and exports amounting to 111,716,337 *l.*, considerably in excess of any previous year except the three (1863-4 to 1865-6) of the American war, 9 per cent. above the trade of 1875-6. 14½ per cent. above the average from 1866-7 to 1870-1, and 12½ per cent. above the average from 1871-2 to 1875-6; and (2) The diminution of imports of merchandise and the increase of the imports of silver, as well as the increase of exports arising from the state of the exchange. The flow of gold from India did not continue in 1877-8.

Increase of Trade.

Effect of depreciation of Silver.

Trade of each Province.

With respect to presidencies and provinces, the trade of Bengal, Bombay, and British Burma increased under both imports and exports, while that of Madras and Sind shewed a diminution under both heads. The increase of imports in both Bengal and Bombay was in treasure alone, those of merchandise having declined; in British Burma the increase was in goods. The diminution of trade in Madras is attributed primarily to the rate of exchange, and then to the scarcity; but the former cause might have operated to stimulate exports in Madras as well as in other parts of India, if the drought had not paralysed operations. Madras did not share in the imports of silver by sea, three-fourths of the whole treasure being landed at Bombay. A falling off in the trade of Sind is explained by the increase in the coasting trade with Bombay, whence European goods are sent in increasing quantities to Kurrachee in supersession of direct imports from abroad.

Trade of Chief Ports.

The five principal ports shared 94 per cent. of the total foreign trade of the country; and, owing to the large dealings in treasure, the transactions of Bombay exceeded in value those of Calcutta by about 850,000 *l.*, the first occasion since 1869-70 that Bombay has obtained the supremacy. Of the remaining ports, Tuticorin had just 1 per cent. of the foreign trade of India, Negapatam and Moulmein a little more than ½ per cent., and after these came Bassein, Akyab, Coconada, Tellicherry, Cochin, Calicut, Mangalore, Beypore, Muttupettai, Bimlipatam, Gopaulpore, and Chittagong; these 15 ports shared 5 per cent. of the foreign trade, leaving only 1 per cent. for the remaining ports of British India. The trade of the Orissa ports has largely developed of late years, but the traffic is with Calcutta. Chittagong has some foreign trade in salt, rice, and cotton; the tea (about 600,000 lbs. annually) is all sent to Calcutta for re-export to Europe; the general (not tea) trade has been declining for the last four years; the place suffered much from the cyclone of October 1876, and there are now only two European firms remaining; but a revival might be anticipated, if regular steam communication with the eastern districts of Bengal were established. Akyab and Bassein chiefly export rice, Moulmein also teak timber. Akyab is almost deserted except in the rice season, but there is no reason why this should be so, as the Arakan hill tracts

Trade of Minor Ports.

* For fuller information, *see* Statement of the Trade of British India with British Possessions and Foreign Colonies for the five years 1872–3 to 1876–7, presented to Parliament.

SEABORNE TRADE.

are well suited for cotton, tobacco, &c., and Ramree and the neighbouring islands abound with petroleum. Bassein is simply a rice port, and will always remain so; her foreign imports consist chiefly of coal for the husking steam mills, and also of salt; her other wants are supplied by the light steamers of the Irrawaddy flotilla from Rangoon. Besides her trade with Rangoon and Calcutta, Moulmein imports articles from the Straits for her Chinese population. The other ports of British Burma, Kyouk-hpyoo, Tavoy, and Mergui, have an insignificant trade. The ports in Madras are relatively of more importance, though much of their so-called foreign trade is with Ceylon, and is of a coasting character; coffee, spices, and cocoanut oil are exported from Malabar; rice, cotton, coloured piece goods, teel seed, and sugar from the Coromandel ports. Coringa sends tobacco to Burma, as well as crowds of labourers during the rice season, and between Ceylon and Tuticorin and Cochin there are extensive transactions in merchandise, as well as a large emigration of labourers to the Ceylon coffee districts.

Trade with Foreign Countries.

Of the trade of India with foreign countries, the transactions with the United Kingdom comprised 59·8 per cent., and those with China 13·9 per cent., these two together making up nearly three-fourths of the entire trade. And of the trade with the United Kingdom, nearly 84 per cent. of the imports consist of cotton goods, metals, coals, and woollen goods. Of French goods, so far as they are received direct from France, apparel, liquors (principally brandy), and silk, make three-fourths of the total, and it is doubtful whether any material increase in the consumption of such articles in India can be expected, as the population is too poor to support an extensive trade in luxuries; their chief wants are cotton clothing, copper and iron for domestic utensils, machinery for the new manufacturing industries, salt, hardware, and cutlery, in the supply of which France cannot compete with England, while the imports from France are scarcely needed, except for the Anglo-Indian community, and the comparatively small number of wealthy natives who like to adorn their houses with gilt-framed mirrors and ormolu clocks, and their persons with silks, satins, and velvets overlaid with gold lace. Not only is France thus incapable of developing a large export trade to India, but the import trade is also crippled by the heavy customs duties imposed by the French tariff on coffee, pepper, and other articles of Indian produce; as long as France has no freight to fill the ships of the French mercantile marine trading with India, they cannot compete as regards return freight with British ships, which therefore possess practically a monopoly of the carrying trade; hence, a considerable proportion of the articles sent from India reach the French market through England, and then their consumption is checked by a *surtaxe d'entrepôt*. The trade with Ceylon is to a great extent of a coasting character, more than 65 per cent. of the exports consisted of grain and pulse to supplement the local deficiency of food stuffs caused by the occupation of the land with coffee, spices, and other more valuable products. With the Straits, trade is carried on chiefly by the opium steamers plying between India and Hong Kong, but there are also the vessels of the British India Steam Navigation Company, which communicate weekly between Calcutta, Rangoon, and the Straits, and a third line of steamers which carries a good deal of the local traffic between the Straits and the Burman ports. The same poverty of the people which prevents any great increase of imports from France also operates in regard to Italy, but the export trade with that country has steadily been developed since the opening of the Suez Canal, the chief articles being raw cotton, silk, and hides, teel seed, sugar, and wheat. The bulk of the imports from the United States consists of ice, those of cotton goods and timber hardly increase, and the trade altogether is small; the exports are chiefly linseed, hides, jute, and indigo.

Trade *viâ* Suez Canal.

Trade to and from India *viâ* the Suez Canal increased from 52,640,857 *l.* in 1875–6 to 60,243,260 *l.* in 1876–7, imports especially shewing a tendency to take this route.

Imports of Merchandise.

The import trade fell off generally, except with Africa, Arabia, Persia and Ceylon; imports from the United Kingdom were less than in 1875–6 by 765,000 *l.*, or 2½ per cent. From Mauritius there was a decrease of nearly 500,000 *l.* in sugar, and from China of about 410,000 *l.* The total diminution of imports of merchandise was 1,745,492 *l.* It was distributed over all the provinces except British Burma, which imported 540,000 *l.* more goods than in 1875–6, a large proportion being destined for independent Burma, the Shan States, and Western

SEABORNE TRADE.

China, and being chargeable with a duty of only 1 per cent. *ad valorem*. The articles in which the decrease is observable are, with a few exceptions, luxuries or *quasi* luxuries, the consumption of which was necessarily restricted during a year of high prices.

Cotton.

The short-stapled cotton of Asia is imported free of duty, and the imports rose from an average of 21,000 cwts. to nearly 40,000 cwts., valued at 83,950 *l.* in 1876-7; it comes principally from Persia, and also from Arabia and Mekran, and is almost all landed in Bombay, where it is used in the mills. Non-Asiatic cotton was subjected to an import duty of 5 per cent., and the average imports of the three years ending 1876-7 were only 115 cwts., chiefly from Egypt; it would be used for the finer fabrics, but the Indian mills as yet confine themselves to the production of coarse twist and piece goods.

Cotton Twist and Yarn.

Of cotton twist and yarn, the imports during 1875-6 were 31,927,340 lbs., of the value of 2,794,769 *l.*, at the average price per lb. of 1 *s.* 9 *d.*; in 1876-7 they were 33,270,208 lbs., valued at 2,733,514 *l.*, or 1 *s.* 7·7 *d.* per lb. The price afterwards dropped below 1 *s.* 7 *d.*; cotton twist and piece goods have had to face a falling market ever since the first apprehensions of famine in November 1876; all such goods have been difficult of sale except at reduced prices, and even then the quantities sold have been much below the average. In Bombay the English twist has to compete with that made locally, which is so much liked as sometimes to sell for higher prices than similar qualities of English yarns. The rise in exchange, also, for a time caused a decline in the demand for English cotton manufactures, but merchants in India kept sending home large orders, the prompt execution of which in Manchester added to the stocks in an overstocked market, and a heavy fall in prices was the inevitable result. In Madras the imports decreased in quantity by nearly a million lbs., but in the other provinces, except Sindh, there was a considerable increase.

Cotton Piece Goods.

In cotton piece-goods the comparison can for the first time be made for two years, as regards quantities, the record of denomination not having been uniform previously. The quantity of grey piece goods in 1875-6 was 856,534,622 yards (10,639,712 *l.*), at an average price per yard of 3·0 *d.*; in 1876-7 the quantity was 840,605,329 yards (10,125,259 *l.*), at an average price of 2·9 *d.* Of white piece goods in 1875-6 there were 174,290,998 yards (2,687,706 *l.*), at a price of 3·7 *d.*, and in 1876-7 there were 193,453,866 yards (2,887,535 *l.*), at a price of 3·6 *d.* Colored piece-goods in 1875-6 measured 155,208,307 yards (2,837,251 *l.*), price 4·4 *d.*, and in 1876-7 they measured 152,240,661 yards (2,709,820 *l.*), at a price of 4·3 *d.* Grey shewed a slight reduction in price as well as in quantity, white a considerable increase in quantity, but a slight decline in price, and colored a slight decline in both quantity and price. The total quantity of piece goods imported was 1,186,299,856 yards, an almost imperceptible increase over the quantity, 1,186,033,927 yards imported in 1875-6. The consequence of maintaining this high level of imports in the face of a languishing demand was seen, not only in the general reduction of prices and difficulty of disposing of goods in the country, but also in the increase of re-exports to foreign countries, which rose from 51,023,222 to 56,340,516 yards. The total value of the imports fell from 16,164,669 *l.* to 15,722,614 *l.*, or 2¾ per cent. The average imports of the two years, after deducting re-exports, would give, for a population of 241 millions, a consumption of less than five yards of piece goods per head, worth at most about 1 *s.* 6 *d.* A trifling deduction must be made for re-exports by land across the frontier, and allowance must be also made for the consumption of Indian goods, mill-worked and hand-woven; assuming this at 30 per cent. of the English manufactures, the average total consumption will be from 6½ to 7 yards of cloth, worth (including customs duties and retail profits to traders) rather more than one rupee to the wearer. The total annual consumption may be taken at 1,650,000,000 yards, worth 27,000,000 *l.*, or a little less than 4 *d.* per yard.

Cotton Goods generally.

The total value of cotton goods of all kinds imported during 1875-6 was 19,244,981 *l.*; in 1876-7 it was 18,725,233 *l.*, representing about 53 per cent. of the imports of foreign goods into India during the year.

Machinery.

Imports of machinery shew a large reduction in value from 1,391,667 *l.* to 882,373 *l.* It is explained that a large part of the decrease is due to an error of classification in 1875-6, the imports of which year were unduly swollen by the inclusion of steam-engines for railways. The actual decrease in machinery is probably about 200,000 *l.*, attributed chiefly to a decline in local requirements in Bombay, and there was a still further falling off in 1877-8.

Coal.

Imports of coal shewed a great increase, from 383,429 tons (665,535 *l.*), at the average price per ton of 1 *l.* 14 *s.* 8 *d.*

to 512,749 tons (931,711 *l.*), at the average price of 1 *l.* 15 *s.* 10 *d.* The recovery of the market, and the larger output in the United Kingdom, induced considerable shipments, which were continued in 1877-8, owing to the demands of the steam vessels between Calcutta and Madras for the conveyance of grain, and of the railroads for the same purpose. Of the quantity imported, 350,000 tons were landed in Bombay, where the cotton mills are large consumers of English coal, but part of the increased trade is attributed to anticipations of higher rates of freight in consequence of the expected war. There was a large increase in the imports of metals from 124,404 tons, of the value of 3,333,469 *l.*, to 140,914 tons, of the value of 3,561,408 *l.* The rapid increase since 1873-4, when the imports were valued at less than half those of 1876-7, is very striking. Imports of iron, which comprise four-fifths of the total quantity recorded under metals, rose from 101,192 tons, valued at 1,424,598 *l.*, in 1875-6, to 112,559 tons, valued at 1,528,406 *l.*, in 1876-7; 99 per cent. comes from the United Kingdom. Imports of copper increased from 11,801 tons (1,207,500 *l.*) in 1875-6, to 13,618 tons (1,398,102 *l.*) in 1876-7; it comes mostly in the form of cakes, tiles, and ingots, yellow metal for the sheathing of ships' bottoms, and sheets, from the United Kingdom, but there is a steady trade with Australia in the unwrought article. Zinc is chiefly imported in unmanufactured form; the imports rose from 59,718 cwts. (82,651 *l.*) in 1875-6, to 96,593 cwts. (143,720 *l.*) in 1876-7. The imports of tin, which come chiefly from the Straits, slightly increased from 36,159 to 37,296 cwts. These three metals are largely employed in the manufacture of brass and bronze. Imports of steel increased from 82,166 cwts. (88,996 *l.*) to 108,642 cwts. (112,245 *l.*). Imports of hardware and cutlery, including plated ware, fell from 475,000 *l.* to 440,000 *l.* Imports of raw silk fell heavily, from 694,889 *l.* in 1875-6 to 451,895 *l.* in 1876-7, and those of manufactures of silk from 708,866 *l.* to 584,788 *l.* It was stated last year that the decrease was chiefly in the imports from China. A considerable proportion of the articles imported under the head of apparel is millinery of an expensive kind; the imports decreased from 615,000 *l.* in 1875-6 to 525,000 *l.* in 1876-7, or nearly 15 per cent. The imports by post are increasing, but are hardly yet of sufficient importance to affect materially the custom house returns. About three-fifths of the imports come from the United Kingdom, and the remainder chiefly from France and Italy. Imports of woollen manufactures rose from an average of 648,675 *l.* in the three previous years to 869,760 *l.* in 1875-6; there was a slight drop to 811,652 *l.* in 1876-7, but the value was still very high. Little raw flax is imported, but linen goods, especially canvas, are in some demand; the total value of the imports of flax manufactures rose from 86,922 *l.*, to 95,843 *l.* Imports of sugar are subject to great fluctuations, sometimes depending on the question whether the year is one pronounced by the Hindoo priests to be propitious for marriages, but in the year 1876-7 having been affected by the great demand in Europe, owing to the failure of the beet-root crops in France, which raised prices to a level that diverted supplies thither from Mauritius. The imports were, in 1875-6, 613,151 cwts., valued at 895,927 *l.*, and in 1876-7, 258,105 cwts., valued at 403,556 *l.* The increase of price, which was about 3 *s.* 6 *d.* the cwt., led to the diminution of the imports from Mauritius to less than a third of those in 1875-6, and the fall was yet greater after the close of 1876-7. Fruit, chiefly dates, from Arabia, was imported to the value of 366,478 *l.* Spices amounted to 432,991 *l.*, of which betel-nut from Ceylon and the Straits, nutmegs and pepper from the Straits, and cloves from Africa and Aden, form the largest portion. Provisions fell from 713,839 *l.* to 661,020 *l.*, chiefly in regard to tinned stores for French and English consumption. The importation of liquors has considerably decreased in recent years; in 1875-6 the number of gallons was 2,438,493, valued at 1,392,127 *l.*, and in 1876-7 the number of gallons was 2,307,876, valued at 1,003,592 *l.* English beer is being displaced, in the hill stations and as far down as Allahabad, by the excellent hill beer; but now a rival business has been established at that station for the supply of concentrated beer, which is condensed in England, and forwarded to India in a semi-solid state, and is said to be, after water has been added and the incomplete fermentation is completed, in every respect as good and palatable as ordinary beer, while cost of freight is reduced, and risk of breaking bottles avoided. Imports of spirits decreased considerably in quantity, from 704,874 to 654,527 gallons, but rose in value from 603,476 *l.* to 622,184 *l.*, the price being increased by about a rupee a gallon, partly owing

Seaborne Trade.

Metals.

Hardware.

Silk.

Apparel.

Woollen Goods.

Linen Goods.

Sugar.

Fruit.

Spices.

Provisions.

Liquors.

Beer.

Spirits.

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to the higher duty, and partly to the endeavour of the importers to recoup their losses on exchange. There was a large diminution in the imports of wines and liqueurs, which fell from 575,396 gallons, valued at 516,069 *l.* in 1875-6,

Wines.

to 464,242 gallons, valued at 406,976 *l.*, in 1876-7; the slight decline in price is attributed to the increased consumption of light clarets, in supersession of the more expensive sparkling wines and the wines of Spain and Portugal. Among

Ice.

the articles sent from America, ice held the foremost place, the imports being valued at 86,839 *l.*; the quantity, however, was reduced from 261,400 to 243,341 cwts., much to the discomfort of the people of Bombay, who suffered from an

Oils and Tobacco.

insufficient supply. With the ice is usually sent a certain quantity of kerosine oil, tobacco, and apples; but, if the Burman oil wells were intelligently worked, and the cultivation and manufacture of Indian tobacco diligently prosecuted,

Salt.

neither of those articles would be required from America. The heavy shipments of salt in 1875-6, induced by a fall of prices in England, were followed by a considerable decline; imports fell from 365,251 tons, valued at 600,934 *l.*, to 298,776 tons, valued at 430,890 *l.*, the average price shewing a decline from 1 *l.* 12 *s.* 6 *d.* to 1 *l.* 8 *s.* 6 *d.* per ton. Bengal took 270,908 tons (more than half of which remained in bond), and British Burma 27,675 tons, a good deal passing up into the territory of the King of Ava; a small quantity of rock salt

Ivory.

is imported from Muscat, for use in the religious rites of the Hindus. One of the effects of the suppression of the slave trade in Zanzibar, and of the progress of direct steam communication between Aden and Europe, has been a revolution in the ivory trade. The returns continued to shew a decrease in quantity, accompanied by an increase of value; in 1875-6 the quantity was 568,588 lbs., valued at 229,247 *l.*, and in 1876-7 the quantity was 546,797 lbs., valued at 241,551 *l.* A removal of the duty would avoid the risk of the trade

Drugs.

entirely leaving Bombay. Imports of drugs shewed a slight increase, notably those of quinine, of which the stocks had been reduced so low as to raise the price from 6 or 8 to 20 rupees the ounce. The qualities of the alkaloid manu-

Seeds.

factured in Calcutta are better appreciated. Imports of rape seed into Sind were considerable in 1875-6, but very small in 1876-7, the native merchants finding it more profitable to bring the seed to Kurrachee overland from Lus Beyla on camels than to send it as formerly on camels to Sonmiani and thence

Grain.

in country craft to Kurrachee. An exceptional importation of grain (chiefly rice) to the extent of 282,000 cwts., valued at 131,370 *l.*, was due to the scarcity in Madras, most of it coming from Ceylon or Saigon. In 1873-4 and 1874-5 large imports were made by the Government, but these did not come into the returns of private trade. Large imports of grain continued in 1877-8, and were four times as great as in 1876-7. Bombay received wheat

Horses.

and other grains chiefly from Turkey in Asia. A steady trade in horses is carried on with Australia, from which the average import of the last three years has amounted to 2,377 animals, described as being mostly "screws."

Dyes.

Imports of dyes have fallen off considerably, owing to the reduction in the

Candles.

quantity of cochineal received. Candles increased by nearly 10,000 *l.* in value, about half the entire quantity being used in the pagodas in Burma. A

Soap.

small quantity of soap is imported, chiefly brown and yellow and the cheaper perfumed soaps, while a somewhat larger amount is exported in unsightly

Manure.

lumps unfit for personal use. Manure, unfortunately for India, figures as an article of export, rather than of import, and will be noticed further on.

Glass.

Imports of glass and glass-ware fell from 349,931 *l.* to 280,741 *l.*, the reduction

Jewelry.

occurring principally in beads and false pearls, lamps, flower-holders, and other articles for decoration. In jewelry there is an increase from 176,831 *l.* to 197,766 *l.*, due to successful pearl fishing in the Persian Gulf. In 1875-6 manu-

Imports of manufactured Articles.

factured articles represented 95 per cent. of the imports; in 1876-7 only 90 per cent., a reduction to be attributed in some degree to the diminution of the value of imported piece-goods.

Re-exports.

The re-exports rose in value from 1,833,161 *l.* to 2,031,563 *l.*, or from 4·9 to 5·7 of the total imports of foreign goods. More than half consists of cotton twist and manufactures.

Exports of Indian Produce, &c.

Exports of Indian produce and manufacture exceeded those of 1875-6 by 4·12 per cent., and the average of the last four years by 8·49 per cent.; in 1875-6 their value was 56,224,964 *l.*, and in 1876-7 it was 58,938,899 *l.* In cotton and jute there was a serious diminution, but the loss of custom for these articles was more than made up by the demand for wheat and other new staples abroad,

and in India for the local manufactures of cotton and jute. The proportion of manufactured articles exported rose from 11 to 13 per cent. of the total, and that of free goods from 78½ to 84¼ per cent. The exports of raw cotton shewed a very heavy fall, nearly equal to that in 1875-6, from the exports of the previous year; in 1875-6 they were 5,009,788 cwts. (13,278,964 *l.*, or 5·68 *d.* per lb.); in 1876-7 they were 4,557,914 cwts. (11,746,184 *l.*, or 5·55 *d.* per lb.). No revival can be expected while the United States export so large crops, and prices in Liverpool retain their present low range, often lower than those in Bombay. There was a slight improvement of price after the close of the year. Of the 4½ millions of cwts., the United Kingdom took 2,606,000, France 735,000, Austria 402,000, Italy 302,000, China 301,000, Germany 56,000, Holland 48,000, Russia 28,000, and other countries about 80,000. The great diminution was in exports to the United Kingdom, China, and Russia, while those to France, Austria, Italy, and Germany, all shewed an important increase. The Bombay mills are active and regular purchasers at good prices, and the exports of their manufactures shew a steady increase, the twist especially being much appreciated in China. It was stated by one of the speakers in a deputation to Lord Salisbury, that in the manufacture of coarse goods the weft consisted entirely of Surat cotton, and that this now never came to England, but was entirely consumed in Bombay, the reason, it is presumed, being that relatively the Bombay manufacturer will pay a higher price than his Manchester rival. The exports of twist in 1875-6 were 6,228,511 lbs. (266,951 *l.*); in 1876-7 they were 7,926,710 lbs. (367,303 *l.*), and the trade has since been doubled. Cotton manufactures were exported in 1875-6 to the value of 396,472 *l.*, and in 1876-7 to the value of 445,079 *l.* Exports of opium played a more than usually important part in the trade of the year, those to China shewing an increase of 1,400,000 *l.* in value; the total exports in 1875-6 were 88,350 chests (11,148,426 *l.*), at 126 *l.* each; and in 1876-7 they were 96,870 chests (12,404,748 *l.*) at 128 *l.* each, the number of chests being larger than has ever before been exported in a single year. Exportation of oilseeds has increased enormously of late years; but there was a decline from 10,506,822 cwts. (5,461,982 *l.*) in 1875-6 to 9,582,865 cwts. (5,319,124 *l.*) in 1876-7. The diminution in 1876-7 was the result of deficient rainfall, but the trade more than recovered in 1877-8. The principal kinds are linseed and rapeseed, which are largely sent to the Continent as well as to England, and teel or gingelly and poppy seed, which are principally exported to France. The trade, which is mostly in the hands of Greeks, is of a very speculative character. Exports of oils fell from 423,583 *l.* to 377,747 *l.* Very little animal, essential, or mineral oil is exported. The chief vegetable oils are castor oil, sent from Bengal to the United Kingdom, Australia, the Straits, and Mauritius; and dregs of gingelly oil sent from Madras to Ceylon. Much is lost by exporting the raw material as used, instead of making it into oil in India, as heavy freight has to be paid on the refuse which would be valuable for manure and cattle-food, and a great risk is incurred of deterioration of cargo by heating. If Europeans were to set up mills, and attach a mark to the oil expressed by them in order to guarantee the quality, the exports of seeds might advantageously be reduced by one-half, while those of oil were correspondingly increased. The unnecessary export of at least 4,000,000 cwts. of material for oil-cake, while the cattle die off like flies in a frost, when drought destroys their scanty pasture, is the reverse of good sense or policy. The year 1876-7 was one of remarkable activity in food-grains. Enormous quantities of rice were poured into Madras from Bengal and Burma, raising prices and diminishing the quantity for export to foreign countries. Exports of husked rice in 1875-6 were 20,090,348 cwts. (5,241,384 *l.*), and in 1876-7 they were 19,548,741 cwts. (5,742,540 *l.*). Prices rose in 1876-7 from 2·6 to 2·9 rupees per cwt., and in 1877-8 the price was 3·8 rupees per cwt. on the average. In Burma prices rose to an unprecedented height, causing in many places acute distress to the poorer classes; but they subsequently fell rapidly with heavy losses to firms under contract for the supply. Wheat has played a subordinate part in the relief of the famine, but it has been the subject of eager exportation to Europe. Both quantities and values were considerably more than double those of the previous year. In 1875-6 the quantity was 2,498,185 cwts., valued at 901,026 *l.*, and in 1876-7 the quantity was 5,583,336 cwts., valued at 1,956,333 *l.* Nearly four-fifths of the wheat goes to England.

SEABORNE TRADE.

Cotton.

Opium.

Seeds.

Oils.

Rice.

Wheat.

SEABORNE TRADE. In 1876 India stood third among the nations which supply England with wheat. The soft wheat realised high prices at Genoa, but complaint is made of the want of care in preparing it for the market, as the hard wheat mixed with it detracts greatly from the appearance of the flour. India might also compete with America and Turkey in the supply of maize to England. The exports of jute have steadily

Jute. decreased for some years; in 1875-6 they were 5,206,570 cwts. (2,805,340 *l.*) at 10*s.* 7 *d.* per cwt., and in 1876-7 they were 4,533,255 cwts. (2,636,647 *l.*) at 11 *s.* 7 *d.* per cwt. Prices shewed a recovery, owing to the demand in the Calcutta mills for jute to make rice bags during the famine. Exports to the United Kingdom, America, and France decreased, while those to Austria and Australia rose. The direct export to France almost ceased, but the French manufacturers take large stocks from the English markets. A large proportion of that sent to America consists of cuttings, or butts, the portion of the fibre which, previous to the pressing of the jute in bales, is cut off from the thick and coarse root end; these cuttings are heckled in the United States, like flax or hemp, and made into cloth to cover cotton bales. The good quality of jute sent to America is

Jute manufactures. used for carpets and other superior articles. The exports of jute manufactures, which in 1875-6 were more than double those of the previous year, rose again by 47 per cent. in value from 489,181 *l.* to 719,478 *l.* Exports of bags to the United Kingdom, China, and Australia shewed a steady increase, but the most

Coir. remarkable feature was the demand in California for corn sacks, the number sent rising from 2,942,050 to 12,768,079. There was a material increase in the exports of coir articles, chiefly yarn and mats, from 111,110 cwts. valued at 100,940 *l.* in 1875-6 to 176,146 cwts. valued at 189,885 *l.* in 1876-7.

Tea. Tea cultivation spreads year by year, and the produce is better known and liked in the English market; during 1876-7 it was a favorite medium for remittances to England, the exports rising from 24,361,599 lbs. (2,166,417 *l.*) to 27,784,124 lbs. (2,607,425 *l.*) Nearly the whole of the exports go to England, but the trade with Australia is capable of development, both in tea and coffee.

Coffee. The quantity of coffee exported fell, in consequence of the drought in Southern India, from 371,986 cwts. (1,627,027 *l.*) to 302,489 cwts. (1,345,822 *l.*), the lowest point attained in the last five years. The excessively heavy duty in France restricts consumption. There is a regular trade in the export of coffee from India and Ceylon to Arabia, in mat bags, to simulate the packing of the Arabian berry, and some of it is brought back to Bombay for sale as Mocha coffee, and is quite as good as much that is produced in Arabia.

Hides and Skins. The increase in the exports of tanned hides and skins, and the diminution of those of the raw articles, continued, the value in the former case rising from 1,190,386 *l.* to 1,492,508 *l.*, and in the latter falling from 1,753,189 *l.* to

Wool. 1,506,176 *l.* Exports of raw wool have somewhat increased in quantity, from 23,767,692 lbs. to 24,056,767 lbs., but diminished in value from 1,094,200 *l.* to 1,077,372 *l.* The exports are almost entirely from Sind, either direct or *viâ* Bombay. The value of woollen manufactures exported rose from 200,993 *l.* to 216,118 *l.*; there is a large demand for wool-packs in Australia, which Calcutta can meet satisfactorily. On the other hand, the exports of woollen shawls, mostly Kashmir fabrics, to France, have dwindled in value to but a fifth of

Teak. those of former years. The exceptional rise in the exports of teak wood during 1875-6 was not maintained in the following year, the quantity falling from 60,612 cubic tons (440,618 *l.*) to 45,108 cubic tons (332,764 *l.*). It is chiefly shipped from Rangoon and Moulmein to England. The only other wood exported to any extent was sandal wood, to the value of 26,133 *l.*, chiefly for

Indigo. burning in the joss houses in China. The quality of the indigo crop was good, and though the quantity exported was less than in 1875-6, the value was higher; in 1875-6 there were 110,392 cwts., valued at 2,875,063 *l.*, and in 1876-7 there

Lac. were 106,384 cwts., valued at 2,962,786 *l.* Exports of lac rose from 103,583 to 128,712 cwts., while the value declined from 755,747 *l.* to 536,976 *l.* The fall in the price of shell-lac was so great that it became necessary to revise the rates of export duty, in order to make them approximate more closely to the market value. Stocks in England and the United States were heavy, and production kept unabated. Exports of lac-dye almost doubled in quantity those of 1875-6. The remaining exports are chiefly of button lac, the melted resin being dropped from a height and formed into lumps, instead of being

Cutch. spread into the sheets which form shell-lac. Exports of cutch and gambier increased from 192,683 cwts., valued at 166,455 *l.*, to 264,933 cwts., valued at

250,752 *l.* Under the stimulus of high prices, caused by a deficiency in the silk harvest in Europe, the trade in raw silk in India temporarily revived, but it afterwards returned to its former depressed condition; in 1875–6 the exports were 1,310,569 lbs., valued at 415,961 *l.*, and in 1876–7 they were 1,417,893 lbs., valued at 776,904 *l.*, the average price shewing a rise from 6 *s.* 4 *d.* to 10 *s.* 11½ *d.* per lb. Exports of silk manufactures shewed a slight fall from 240,766 *l.* to 223,662 *l.* The failure of the beetroot crop in France, and of the maple in North America, gave rise to an unusually active demand for sugar among the refiners of England, and the exports shewed a very large increase from 420,762 cwts. (253,937 *l.*) to 1,093,625 cwts. (925,196 *l.*). It would have been more satisfactory if the increase had been gradual, as a sudden check was probable, and then the attention of European consumers would be diverted to other directions, only to resort to India on the failure of other sources of supply. The trade in Indian tobacco has quite fallen off since 1874–5, when the value of the exports reached 228,291 *l.*; in 1875–6 unmanufactured tobacco was exported to the amount of 22.861,711 lbs.. and the value, including that of cigars, was 169,511 *l.*; in 1876–7 only 10,508,720 lbs. of unmanufactured tobacco was exported, and the value, including that of cigars, was 89,140 *l.* Some little trade which was springing up with Gibraltar was cut down to half its previous dimensions by the activity of the Spanish customs officers in interfering with the smugglers from the Rock. In the transactions with Ceylon there is a noteworthy increase of manure, from 4,623 tons, valued at 15,175 *l.* in 1875–6, to 16,865 tons, valued at 48,926 *l.* in 1876–7. It chiefly consists of cow dung, which in Tinnevelly is worth but 14 *s.* a ton, while at Colombo it fetches 3 *l.* The manure thus exported is a serious loss to the country, for which the money obtained is no adequate compensation. A good deal of oil-cake also is sent from Bengal to Ceylon, the value in 1876–7 exceeding 93,500 *l.*, which it would have been better to have kept in the country to feed the half-starved live stock of the agricultural community.

SEABORNE TRADE.

Silk.

Silk manufactures.

Sugar.

Tobacco.

Manures.

Oil-cake.

As regards the movement of Government and private treasure, statistics shew that under gold, imports fell from 1,836,381 *l.* to 1,443,712 *l.*, and exports rose from 291,250 *l.* to 1,236,362 *l.*, while under silver, imports rose from 3,464,341 *l.* to 9,992,408 *l.*, and exports from 1,908,986 *l.* to 2,793,536 *l.* The total imports of treasure therefore rose from 5,300,722 *l.* to 11,436,120 *l.*, and the exports from 2,200,236 *l.* to 4,029,898 *l.*, the net imports increasing from 3,100,486 *l.* to 7,406,222 *l.*

Treasure: imports and exports.

From Sea Customs Revenue (including salt) the gross receipts declined on imports from 4,253,239 *l.* to 4,170,947 *l.*, and on exports from 713,001 *l.* to 605,080 *l.* In the case of the import duties, salt in 1876–7 gave 60 per cent. of the receipts, cotton goods 20 per cent., liquors 8 per cent., and metals nearly 3 per cent., leaving about 9 per cent. for the whole tariff except these four classes. Export duties are now levied on only three articles, from which the following were the receipts in 1876–7: indigo 41,132 *l.*, rice 529,735 *l.*, lac 33,952 *l.*

Customs Revenue.

As regards the numbers and tonnage of the shipping in Indian ports, there was an increase under vessels entered from 6,259 (2,629,923 tons) to 6,376 (2,791,884 tons), and under vessels cleared from 6,201 (2,799,063 tons) to 6,388 (2,842,158 tons), the total number entered and cleared rising from 12,460 (5,428,986 tons) to 12,764 (5,634,042 tons) and the average tonnage from 435 tons to 441 tons. Notwithstanding the reduction of imports of merchandise, the great demand for vessels engaged in the foreign trade to carry food from Calcutta to Madras, and the augmented quantity of exports, led to an increase of the shipping employed during the year; the number of vessels in the Hooghly in 1877 was extremely large. During 1875-6 and 1876-7, no steamer or sailing vessel left Bengal without a cargo; but in Bombay and British Burma ships were sometimes unable to find one, and they frequently came to Calcutta for this purpose. Excluding the petty trade, which was really of a coasting character, between Madras and Ceylon, the Maldives, and Straits, and between Sind and Mekran and Sonmiani, less than 2 per cent. of the whole of the clearances were without cargoes. Steamers have considerably increased in number since the figures began to be separately recorded; and the number and size of steamers engaged in the Indian trade, which pass through the Suez Canal, also continue to increase; in 1876-7 more than 64 per cent. of the total steam tonnage passed through the Canal, the aggregate number of the vessels

Shipping.

Cargoes.

Steamers viâ *Suez Canal.*

SEABORNE TRADE.

passing both ways being 1,040, with a total tonnage of 1,518,690 tons and an average tonnage of 1,460 tons. Taking all nationalities of shipping, we find that the proportion of British tonnage increases, having been 68·49 per cent. of the whole in 1874-5, 68·61 per cent. in 1875-6, and 71·25 per cent. in 1876-7. Foreign vessels often find it difficult to obtain a full cargo on the Continent or America for Indian ports, and frequently they discharge their cargoes in neighbouring countries, and go on to India to load with rice or other produce. Such vessels cannot afford to carry away cargo from India at rates which can be profitably taken by British vessels filled with cargo when they enter and clear. The British Indian tonnage was 9½ per cent. of the total in 1876-7.

Nationality of vessels.

Coasting trade.

Returns of coasting trade were still quite untrustworthy, quantities being overstated, sometimes to a gigantic extent; values being understated, either deliberately or by accident; and entries being made at random by importers or shippers. The distinction between goods of foreign and those of Indian origin was, in many ports, not made by a declaration from merchants, but the items were separated according to the sense of the fitness of things possessed by the clerks of the Custom House. The law was about to be modified, so as to provide for a much closer approximation to accuracy, penalties being imposed in flagrant cases, but without undue interference with trade. Many of the Customs' officers have, however, got to learn the importance of securing a complete record of the trade of the country. The statistics shew an increase in 1876-7 (adding imports and exports together) from 31½ to nearly 50 millions sterling, or 50 per cent. over the figures for the previous year, attributable to the transit of grain in consequence of the famine, the recorded imports of which were 5,029,054 cwts. valued at 1,609,279 *l.* in 1875-6, and 14,999,769 cwts. valued at 6,904,675 *l.* in 1876-7. Though the Bombay Presidency was itself suffering from dearth, great quantities of food stuffs passed through on their way by sea to Madras, from the Central Provinces, the adjoining native States, and the North West Provinces. Exports of raw cotton fell off from Madras and Burma; but those of twist and yarn rose from 9 to 15¼ million lbs., Calcutta twist finding its market in Burma, and that from Bombay in Madras and Bengal; exports of piece goods also rose from 16,778,894 yards valued at 331,921 *l.* in 1875-6 to 22,947,406 yards valued at 460,281 *l.* in 1876-7. The trade in manufactured jute, cocoanut and castor oil, teel, castor, and other oil seeds, betelnut, and pepper, sugar, tobacco, and raw wool was flourishing, while that in silk manufactures, tea, and teak wood declined.

Bengal Presidency.

Including Government transactions, the share of Bengal in 1876-7 was over 57 per cent. of the entire seaborne trade of India. The aggregate value of the Bengal trade was more than 62,000,000 *l.* With regard to foreign trade, the imports of private merchandise fell from 17,767,175 *l.* in 1875-6 to 16,693,813 *l.* in 1876-7, while the imports of private treasure were respectively 1,080,545 *l.* and 2,625,467 *l.* The value of the exports of Indian produce and manufactures rose from 23,639,575 *l.* to 26,446,648 *l.*, and of foreign goods from 107,485 *l.* to 149,370 *l.*; the total value of the exports of private merchandise thus advancing from 23,747,060 *l.* to 26,596,018 *l.*, while the exports of private treasure fell from 745,943 *l.* to 103,831 *l.* Exports of private merchandise thus exceeded imports by 9,902,205 *l.*, and exports of private treasure were less than imports by 2,521,636 *l.* Steamers that entered with cargoes rose in number from 215, aggregating 307,141 tons, to 239, aggregating 332,422 tons, and sailing vessels from 430, aggregating 422,436 tons, to 438, aggregating 458,272 tons, the total increase of tonnage being 61,107 tons. Steamers that cleared with cargoes rose from 230 to 262, and their tonnage from 319,307 to 365,769 tons, while the number of sailing vessels rose from 581 to 602, and their tonnage from 553,801 to 596,554 tons, the total increase of tonnage being 89,215 tons. Private coasting trade increased under both imports and exports, the total value of the imports of Indian produce and manufactures and foreign merchandise rising from 2,182,658 *l.* to 2,257,905 *l.*, and of the exports from 5,025,637 *l.* to 9,550,209 *l.*, while the imports of treasure rose from 258,672 *l.* to 570,014 *l.*, and the exports from 759,244 *l.* to 2,158,729 *l.*

Foreign trade of Calcutta port.

The value of the total foreign and coasting trade of the port of Calcutta, excluding imports and exports on behalf of Government, rose from 50,304,706 *l.* in 1875-6 to 58,775,809 *l.* in 1876-7. As regards foreign trade, imports of merchandise declined in value from 17,739,882 *l.* to 16,667,425 *l.*, while

exports rose from 23,557,469 *l.* to 26,453,481 *l.* Under treasure, the aggregate transactions shewed a rise in imports from 1,080,375 *l.* to 2,625,466 *l.* accompanied by a decline in exports from 745,943 *l.* to 103,831 *l.* Imports of gold fell from 565,529 *l.* to 203,877 *l.*, and exports from 67,638 *l.* to 1,970 *l.* The silver imports rose from 514,846 *l.* to 2,421,589 *l.*, but the exports fell from 678,305 *l.* to 101,861 *l.* As regards coasting trade, there was a slight advance under imports of merchandise from 1,713,571 *l.*, while the exports of merchandise increased enormously from 4,689,117 *l.* to 8,865,199 *l.* SEABORNE TRADE.

Trade at the port of Chittagong again suffered a heavy decline. The imports from foreign countries fell in value from 27,430 *l.* in 1875-6 to 26,199 *l.* in 1876-7, and the exports from 133,073 *l.* to 60,725 *l.* This was the natural consequence of the damage which resulted to crops and shipping from the cyclone and storm wave of 31 October 1876, and of the subsequent outbreak of cholera which further paralysed trade. Coasting trade improved under both imports and exports; the former rising considerably in spite of a decline in the supply of earth-oil from British Burma, which was attributed to the straitened circumstances of the inhabitants of Chittagong, while the exports were affected by large shipments of grain to Madras. Chittagong tea is said to be of excellent quality, and to shew some promise of becoming the most important staple of a direct trade with Europe. Chittagong port.

Of the three Orissa ports, Balasore, Cuttack, and Pooree, the trade is almost entirely coastwise. There is a small foreign export trade in rice, wheat, and oilseeds. During 1876-7 there was an enormous increase in the exportation of rice to other Indian ports, proving that the resources of Orissa were made available to relieve the famine tract at the time of its extreme need. Orissa ports.

In the seaborne trade of British Burma there was a marked increase during 1876-7. Under private foreign trade there was an advance in imports from 1,685,577 *l.*, and in exports from 3,738,677 *l.* to 3,864,544 *l.*; while under private coasting trade the imports rose from 2,700,289 *l.* to 4,339,787 *l.*, and the exports from 2,046,387 *l.* to 2,083,311 *l.* Government transactions of all sorts amounted in value to 357,883 *l.* Cotton piece goods, twist and yarn, silk piece goods, tobacco, woollen piece goods, betel nuts, provisions, jute gunny bags, and oils were the most valuable imports. Rice, the staple product of the province, was exported to the value of 3,343,848 *l.* The exports of teak, the second great staple, were 114,863 cubic tons, valued at 782,466 *l.* Cutch and gambier amounted to 265,102 *l.*, and raw cotton to 211,383 *l.* Among other exports were raw hides (65,697 *l.*), jadestone (65,133 *l.*), mineral oils (43,613 *l.*), and caoutchouc (32,171 *l.*) British Burma ports.

The long-continued drought and consequent famine variously affected the seaborne trade of the Madras Presidency during 1876-7. Both exports and imports of foreign trade suffered greatly owing to the diminution in the production of the principal articles of export in the country, and the decrease in the purchasing power of the poorer classes, resulting in diminished demand for foreign articles. On the other hand the coasting trade with other Presidencies and the inter-portal trade within the Presidency were stimulated to extraordinary activity in furnishing food for the famine-stricken populations. The following analysis, which excludes transactions on account of Government, compares the results of the trade for 1876-7 with those for 1875-6. Under foreign trade, imports of merchandise declined from 3,891,939 *l.* to 3,436,072 *l.*, and of treasure from 562,352 *l.* to 443,361 *l.* Exports of merchandise fell from 7,193,120 *l.* to 6,454,277 *l.*; but those of treasure rose from 72,512 *l.* to 553,597 *l.* Under coasting trade there was a general rise, the imports of merchandise increasing from 3,771,317 *l.* to 9,010,074 *l.*, and of treasure from 488,070 *l.* to 882,270 *l.*, and the exports of merchandise from 3,460,665 *l.* to 4,686,848 *l.*, and of treasure from 281,086 *l.* to 638,228 *l.* Thus the value of exports and imports of merchandise and treasure to and from foreign countries, fell by 457,758 *l.* and 574,859 *l.* respectively, while that of the exports and imports to and from Indian ports rose respectively by 1,583,324 *l.* and 5,632,957 *l.* The aggregate value of the export trade rose from 11,207,384 *l.* to 12,332,950 *l.*, and of the import trade from 8,713,678 *l.* to 13,771,777 *l.* The entire private seaborne trade of the Madras Presidency increased from 19,921,062 *l.* to 26,104,726 *l.*, or by no less than 6,183,664 *l.* In 1875-6 there was an excess in the value of exports of 2,493,706 *l.*, while in 1876-7 the value of the imports exceeded that of the exports by 1,438,827 *l.* Madras Presidency.

SEABORNE TRADE. As regards the seaborne trade of Madras with other provinces in India, the principal imports from Bengal are rice and other grains, cotton piece goods, cotton twist, and metals, and the principal exports cotton, seeds, hides and skins, spices, coffee, tobacco and oils. The export trade has decreased by 4·7, and the import trade has increased by 450 per cent. Bombay procures from Madras, coffee, spices, oils, cocoanuts, timber, coir and sugar, and supplies cotton piece goods, cotton twist and metals. There was an increase both in the exports and imports amounting respectively to 23 and 46 per cent. With Sind the trade is not of great importance, but in 1876-7 the imports rose from 17,144 *l.* to 64,989 *l.* The increase was chiefly in rice. In exports the decrease was small. British Burma usually takes oils, seeds, tobacco, and cotton piece goods, and supplies rice and timber. In 1876-7 the imports and exports rose by 84 and 28 per cent. respectively.

Bombay Presidency (excluding Sind). The value of the seaborne trade (foreign and coasting) of the Bombay Presidency (excluding Sind) advanced from 16,810,858 *l.* in 1875-6 to 77,338,065 *l.* in 1876 7, due to an increase of 4,500,000 *l.* in exports, and 5,000,000 *l.* in imports. Of the former, 2,900,000 *l.* was in foreign, and 1,600,000 *l.* in coasting trade. Of the latter, 4,000,000 *l.* was in foreign, and 1,000,000 *l.* in coasting trade. Among imports the chief rise was in coal, cotton piece goods, railway materials, spices, oils, and cotton twist, while the chief decline was in Mauritius sugar, machinery, and millworks, China raw silk, China tea, and China silk goods. Among exports the chief rise was in opium, grain, and pulse, cotton twist, and cotton goods, while the chief decline was in raw cotton and oilseeds. There was an extraordinary increase in the export of gold, the exports rising from 160,000 *l.* to 1,170,000 *l.*, exceeding the imports by 780,000 *l.* The imports of silver rose from 2,661,432 *l.* to 7,269,941 *l.*, and the exports from 1,338,214 *l.* to 2,599,186 *l.* The shipping returns of the port of Bombay shew that the arrivals rose, in sailing ships from 39,568 to 49,961, and in steamers from 581 to 801, with a total increase of burden from 1,535,729 to 1,790,359 tons. The departures rose, in sailing ships from 40,338 to 41,426, and in steamers from 594 to 797, with a total increase of burden from 1,575,923 to 1,671,019 tons.

Sind. Excluding Government stores and treasure, the Sind sea trade returns shew a slight rise from 4,637,406 *l.* to 4,657,935 *l.*, due to an increase from 142,597 *l.* to 281,102 *l.* in grain and pulse shipped coastwise, chiefly to the southern ports of Bombay and to Madras. The total foreign trade fell from 2,065,548 *l.* to 1,988,197 *l.*

INTER-PROVINCIAL LAND TRADE. A very general improvement took place during 1876-7 in the registration of the land traffic between the different provinces of British India.

Bengal. As regards the land trade between Bengal and other provinces, the railway returns for 1876-7 are incomplete, and therefore the results of the registration between Bengal and the Upper Provinces are imperfect. But the railway-borne trade of the most important staples with Calcutta is registered, and the movements of the river-borne trade across the frontier are recorded in detail. Almost the whole of the Assam traffic is carried by country boats and river steamers, and is registered. There is a small road traffic between Madras and Orissa, which is intercepted at the registration station at Rumbha in the district of Ganjam. Altogether imports into Bengal were recorded to the value of 9,557,451 *l.*, and exports to other provinces to the value of 6,341,864 *l.* Thus the balance of trade is decidedly against Bengal, being due solely to the very large excess of imports from Assam, the North-Western Provinces, and Oudh.

Assam. On the main river routes between Assam and Bengal, traffic was registered during 1876-7 of the following value: imports into Assam, 1,229,942 *l.*, exports to Bengal, 3,621,788 *l.* The principal imports were cotton piece goods (427,200 *l.*), salt (218,278 *l.*), rice (104,673 *l.*), metals, sugar, liquors, grain and pulse, spices, betel-nuts, and tobacco; and the principal exports were Indian tea (2,227,640 *l.*), mustard seed (413,632 *l.*), timber (335,211 *l.*), raw cotton (97,350 *l.*), rice and paddy (87,410 *l.*), lime and limestone, lac of all kinds, caoutchouc and raw jute.

N. W. Provinces. During 1876-7 measures were put in force for the registration of the land trade of the North-Western Provinces in uniformity with those adopted in other parts of British India. No complete analysis can at present be given of the internal traffic of the provinces, in consequence of the difficulty of obtaining

railway statistics (which are the most important of all) in any form which can be utilised. Arrangements have, however, been made with railway officers to secure an efficient system. The most important trade is by rail with Calcutta. Cawnpore is the station that exports most food grains, especially wheat and oilseeds, and it imports the largest supply of European cotton piece goods. More rice is imported from Bengal than is exported, but with that exception all other food grains are exported from the North-Western Provinces to Bengal. Sugar is an export of great value; also indigo and cotton. The only supplies received from Bengal are English cloth goods and twist, and consignments of salt to the districts of Ghazipore and Goruckpore. Piece goods received by rail were valued at 2,500,000 *l.* in 1876-7, but this large import, notwithstanding the general balance of trade, was largely in favour of the North-Western Provinces as against Bengal, the total registered imports by rail and boat amounting to 2,880,094 *l.*, and the exports to 4,739,788 *l.* INTER-PROVINCIAL LAND TRADE.

Statistics regarding the land trade of Oudh are given only for the year ending 30 September 1876 compared with the previous twelve months. The value of the imports fell from 1,768,133 *l.* to 1,667,737 *l.*, while the value of the exports rose from 1,331,988 *l.* to 1,740,688 *l.* In imports there was a great falling off under the head of cotton, and a remarkable increase in edible grains, but the amount of grain imported did not exceed the amount exported. The figures for grain show, as regards imports, a rise in quantity from 317,513 maunds to 2,499,532 maunds, and in value from 44,364 *l.* to 356,963 *l.*, and as regards exports, a rise in quantity from 2,953,944 maunds to 2,973,814, accompanied by a decline in value from 469,373 *l.* to 404,320 *l.* Importations of English piece-goods fell from 474,616 *l.* to 105,993 *l.*, and there was an increase in the exportations of both English and country cloth. Oudh.

Corrected values have been applied to the Punjab trade statistics of the two previous years, the valuations having been found to be undoubtedly too high. The trade with other British provinces and native territory in India, taking the corrected values for 1875-6, shewed a rise under imports from 7,373,854 *l.* to 8,213,199 *l.*, and under exports from 4,111,405 *l.* to 4,562,820 *l.* Punjab.

In the Central Provinces the value of exports and imports entered was 6,990,631 *l.* in 1876-7, against 8,113,619 *l.* in 1875-6; but in 1875-6 there was a very large import of machinery for the new spinning mills and for cotton pressing, and in 1876-7 the exports of Malwa cotton for China passed through Nimar to Bombay by rail without being registered as in previous years. Under these two heads the returns are less by more than two millions sterling than in the previous year, so that, as regards the proper trade of the country, there has been greater activity than usual. The main feature of the year was the large development of the grain trade, due to the exports on account of the famine in the Bombay and Madras Presidencies, and to the European demand for wheat, resulting in an increase of the quantity by 55 and of the value by 85 per cent. In the principal exports of the province, grain, cotton, and oil seeds, much business was done, chiefly in the direction of Bombay, and speculators made large profits. Central Provinces.

With the single exception of the Chittagong Hill Tracts, there is no portion of any British province or possession bordering on British Burma; and the land traffic with these tracts is insignificant. British Burma.

As compared with that of the previous year, the import trade of Ajmere rose in 1876-7 from 218,013 *l.* to 278,091 *l.*, and the exports fell from 35,102 *l.* to 28,959 *l.* The Beáwar trade declined considerably under both heads, the imports from 294,959 *l.* to 220,204 *l.*, and the exports from 242,880 *l.* to 161,341 *l.* As Ajmere remained the terminus of the railway*, the Beáwar trade naturally suffered. The opening of the railway considerably decreased the previous transit trade of both towns. A failure of the cotton crop must also have had a great effect on the Beáwar exports. The value of the cotton exported in 1875-6 was 133,000 *l.*, and in 1876-7 only 51,322 *l.* People beyond the border probably now get their consignments direct instead of trusting to the traders of Beáwar and Ajmere; now that the transport of goods is so easily arranged, a great impetus to trade has been given by the removal of all intermediate transit dues in Native States Ajmere.

*The section of the Western Rajputana State Railway from Ajmere to Nayanagar (33 miles) was begun and completed during 1877-8, and on 15 May 1878 was opened to public traffic. It passes through Beáwar.

INTER-PROVINCIAL LAND TRADE.

owing to the opening of the railway, and the price of several articles has in consequence fallen very considerably.

Berar.

Not since the cotton scarcity in the days of the American war has the trade of the Hyderabad Assigned Districts been so active. The value of imports increased from 2,244,012 *l.* to 2,360,179 *l.*, and of exports from 2,517,456 *l.* to 4,815,631 *l.* The enormous increase of 2,298,175 *l.* in exports was due to the large supplies of grain to the famine districts, but trade was much impeded by the difficulty of obtaining carriage by rail.

Mysore.

Returns regarding the trade of Mysore continue too untrustworthy to frame accurate conclusions from them. In 1876-7 there was a large increase in the import trade of the chief articles of food, owing to the unfavorable character of the seasons. The total value of the imports is set down at 3,928,765 *l.*, and of the exports at 1,296,690 *l.* Coffee was exported to the amount of 2,762 tons, valued at 240,430 *l.*, and the value of the exports of cardamoms was 10,520 *l.*

Coorg.

As compared with the values in 1875–6, the Coorg trade returns shew a diminution under exports, chiefly of coffee, of nearly 120,000 *l.*, and an increase under imports of 40,000 *l.* The imports in which the increase is noticeable are rice, other grains, condiments, salt, butter, *ghi*, sugar, *jaggri*, tobacco, vegetables, cocoanuts, wines, spirits, metals, hardware, fowls and live stock.

FRONTIER TRADE.

Bengal.

Considerable improvements were generally effected during 1876-7 in the registration of the land traffic between British India and adjoining territories across the frontier, which extends from Baluchistan on the west to Siam on the east, a distance of over 5,000 miles. Imports were recorded to the value of 4,287,999 *l.*, and exports to the value of 3,307,801 *l.*, the total value under both heads being 7,595,800 *l.* Of this amount the trade with Burma accounted for 2,738,999 *l.*, that with Afghanistan for 1,830,418 *l.*, and that with Nepal for 1,393,172 *l.* Details of the trade with the various countries concerned are given in the following paragraphs.

The difficulties in the way of registration of the traffic across the frontier between Bengal and foreign territory are so considerable, the channels of communication so numerous, and the length of frontier so great, that it has been found impossible to establish a cordon of stations that will effectually register this traffic. The foreign provinces concerned are Nepal, Sikkim, and Bhootan. The trade is entirely by land, and carried by carts and on pack bullocks, and occasionally by coolies. Timber only is floated down the rivers. During 1876-7, the number of stations was only 22, along a frontier of more than 300 miles. Traffic across the frontier between Bengal and Nepal, from Champarun to Darjeeling, was registered at 17 stations; the exports from Bengal were valued at 467,301 *l.*, and the imports from Nepal at 550,782 *l.* The chief exports were piece goods (mostly European) and salt; and the chief imports, cattle, food grains, and oilseeds. The whole trade may be said to be with Katmandoo, where the court, the army, and all the higher paid officials reside, and where there is a long-estabished mercantile connexion with Tibet. Trade with Sikkim and Tibet was registered at 2 frontier stations; the exports from Darjeeling to Sikkim in 1876-7 were valued at 14,165 *l.*, and the imports (nearly all timber) at 80,266 *l.* There are 3 frontier stations in Jalpáiguri to register the traffic passing between Bengal and Bhutan. The exports from Bengal were valued at only 759 *l.*, and the ports at 1,271 *l.*

Assam.

At the end of 1876 the registration of the Assam frontier trade was begun, and statistics are available for the last quarter of 1876-7. This trade is carried on with Bhutan, the Mishmi Hills, the Nága Hills, Manipur, the Lushai Hills, and Hill Tipperah. For the purpose of registration, 21 stations were selected, but, as much is effected by unpaid agency, the statistics are not as trustworthy as could be desired. Owing to the poverty and uncivilised condition of the hill tribes, the trade is of an insignificant character and very limited in extent, being chiefly confined to petty transactions of barter at the large annual fairs attended by these tribes. Want of communications between Assam and adjoining foreign countries is a formidable obstacle to any material development of the frontier trade, which probably does not amount to much more than 100,000 *l.* a year. The principal articles of import into Assam are timber, bamboos, caoutchouc, blankets, raw cotton, horses and ponies, and wax; and of

export, silk manufactures, cotton goods, betelnut, opium, salt, and brass and copper manufactures. FRONTIER TRADE.

A new system of traffic registration in the North-Western Provinces was carried into effect during 1876-7. One of its results is the beginning of an analysis of the trade of Tibet and Nepal across the frontier of these provinces. The boundary between Tibet and the North-Western Provinces lies above British Garhwál and Kumaun, and runs along the most difficult and snow-laden country in the Himálayan range. It is crossed at 8 passes, the trade across which is not very important. The country immediately on the other side of the snows is unfertile and sparsely populated, and does not offer sufficient attractions to overcome the difficulties of the journey. What traffic exists is conducted by the Bhotia tribes of the Upper Himálayas, who during the hot months, when the melting of the snow permits them to cross the higher range, make one, two, or three journeys to the other side, in order to barter and exchange goods with the inhabitants of the trans-Himálayan tracts; and in the colder months, when the passes are closed, descend to the marts in the inner hills and purchase new wares from the merchants, who meet them there with the products of the plains. The chief imports to the North-Western Provinces are horses, cattle, borax, salt, wool, and gold; the exports to Tibet are, in the order of their importance, grain (half being rice, the rest chiefly wheat and barley), sugar, cotton piece goods, woollen manufactures, spices, and miscellaneous articles. The decline of the borax trade, on the discovery of borax in other countries, has occasioned much distress among the Bhotiás. Tibet salt also is driven back further than ever by cheapened salt from the plains. The extent of the gold dust trade is not known, every Bhotia brings back some gold in his pocket, and some take their gold dust direct to goldsmiths and merchants in Delhi and other large towns. For 1876-7 the value of imports into the North-Western Provinces from Tibet is given as 28,665 *l.*, and of exports as only 9,599 *l.* Nepal forms the northern boundary of the North-Western Provinces and Oudh. About 53 trade routes lead from these provinces to Nepal, many of them being simply cart tracts. Several rivers form important waterways between Nepal and British territories. The principal articles imported from Nepal into the North-Western Provinces and Oudh are ponies, copper and iron, grain, oilseeds (from the strip of level land at the foot of the Himálayas), timber, spices, gums, and other forest products, hides, and furs. The exports to Nepal are cotton twist and piece goods, both European and Native, fruits and nuts, grain in small quantities, manufactured metals, *ghi*, salt, sugar, tobacco, and exotic spices and peddlery. The traffic is carried on chiefly by British subjects, who either have permanent shops in the marts on the border within the Nepal territories, or visit the fairs and markets held in Nepal on stated days. Nepalese subjects are practically forbidden to enter British territory. The export of timber was very considerable a few years back, but the trade has now declined, owing to the higher duties imposed upon it by the Nepal Government in order to check denudation of forests. For 1876-7 the value of the imports into the North-Western Provinces and Oudh from Nepal is given as 272,986 *l.*, and that of the exports as 101,903 *l.* N. W. Provinces and Oudh.

The frontier trade of the Punjab is carried on with Kashmir, Ladakh, Chinese Tibet, Bajaur, Kabul, Tirah, and Siwistan. Of the aggregate trade in 1876-7 the estimated value was as follows: imports, 1,410,988 *l.*; exports, 2,533,162 *l.*, total, 3,944,150 *l.* From Kashmir, imports were received to the amount of 596,851 *l.*, mainly consisting (in order of their value) of shawls, raw silk, timber, *ghi*, drugs and dyes; while the exports thither were piece-goods, salt, sugar, grain, tea, metals and manufactures of metals, and tobacco. Notwithstanding the decrease in the trade of shawls manufactured in the Punjab, the value of shawls imported from Kashmir, where the same causes must have operated to a considerable extent, did not decrease in a corresponding degree; still there has been a real decrease of late years, and the largely increased export of raw silk (from 22,245 *l.* in 1875-6 to 146,520 *l.* in 1876-7) points to a falling off in the shawl industry in Kashmir. Only one quarter of the piece-goods exported were of Indian manufacture; European fabrics are supplanting those of native make. There was a revival in the export of salt; that taken to Kashmir is from the Mayo mines. Five-sixths of the tea exported to Kashmir was of Indian growth. Figures for the Ladakh trade include the small amount of trade that is carried Punjab.

FRONTIER TRADE.

on with Yarkand; borax, which comes from the vicinity of Puga in Ladakh, is the principal article of import, but it is believed that the demand for borax is declining, owing to the discovery of large fields in America. Several articles of import had an actually higher value than borax: these were *charas*, raw wool, raw silk, and ponies; the raw silk must have come from Yarkand; the ponies were valued at 6 *l.* 10 *s.* each, and their number for the last quarter of the year was 317. Exports to Ladakh consist mainly of Indian teas, piece-goods, hides, drugs, wheat, rice, iron, and sugar. Some of the Ladakh trade passes through Kashmir, and is registered with the Kashmir trade when it arrives at British territory. The road to Ladakh through Kulu is good, but there are several high passes between Sultanpur and Leh, varying from 13,000 to 17,000 feet above the sea level; a limited number of enterprising merchants carry on this trade, which is not likely to develop to any great extent. Very little trade goes on between the Punjab and Chinese Tibet; the imports (14,269 *l.* in 1876-7) are principally salt and wool, and the exports (421 *l.*), piece goods. The salt imported is the produce of Chinese Tartary, and the traders dispose of it in Bussahir territory in lieu of grain. Communication with Chinese Tibet is by the Chini-road, which is scarcely passable for half the year. Bajaur trade in 1876-7 is stated to have been worth 41,872 *l.* in imports into the Punjab, and 19,936 *l.* in exports; the principal article imported was firewood, then came *ghi*, fruits, grain, mats, manufactured fibres (other than jute), brass and copper, and oils. As regards trade with Kabul, the imports into the Punjab during 1876-7 were valued at 716,007 *l.*, while the exports amounted to 793,130 *l.* In order of their value, the principal articles of import were fruits and nuts (176,594 *l.*) raw silk (173,685 *l.*), drugs, dyes, timber and firewood, wool (19,402 *l.*), *ghi*, raw fibres, and tobacco (7,177 *l.*); while the exports were tea (360,724 *l.*), piece-goods (186,432 *l.*), indigo (132,686 *l.*), leather (18,785 *l.*), sugar, spices, grain, salt, and metals. Very little Indian tea finds its way to Kabul, as China teas are most in favour there and in Bokhara. There are 3 trade routes to Kabul from the Peshawar valley, named the Gandab, the Tartara, and the Kabul river route; three trade routes lead from the Kohat district through the valley of the Kurram, all meeting at Judda on the left bank of the river; from Bannu traders apparently use only the Kurram route. Besides what has to be paid for *badraga*, or guards of hill men entertained for safe conduct, duties are levied at various places on the different routes, most of the duties being imposed by the Amir of Kabul, but some by the Khans of the Mohmand, Malagori, Morcha, Khel, and other tribes. Trade with Tirah is not of much importance; in 1876-7 the imports were valued at 14,979 *l.*, and the exports at 5,953 *l.* Most of the trade conducted with Siwistan is actually with Baluchistan; neither imports nor exports are considerable, amounting in 1876-7 to 10,196 *l.*, and 18,041 *l.* respectively; raw cotton, wool, and wheat were the principal articles imported from Siwistan, while piece goods, sugar, and wool were the chief exports.

Sind.

Registration of trade between Sind and adjoining foreign countries was still very imperfect in 1876-7. Imports from Baluchistan were registered to the amount of 90,963 *l.*, and exports from Sind to Baluchistan to the amount of 2,378 *l.* From Afghanistan the imports were 239,883 *l.*, while the exports to that country were 81,398 *l.* These figures are certainly very much under the real mark.

British Burma.

Improvements were effected during 1876-7 in the registration of the foreign land trade carried on by British Burma with Siam and Upper Burma, but the statistics obtained are still very far from complete. Taking the returns for what they are worth, the entire value of imports shewn is 1,589,762 *l.*, and of exports 1,480,703 *l.*, as against 1,514,613 *l.* and 1,355,919 *l.* respectively in 1875-6.

ADEN TRADE.

Aden trade declined during the year, the aggregate imports by sea and land falling from 2,008,207 *l.* to 1,880,358 *l.*, and the exports from 1,447,857 *l.* to 1,334,798 *l.* The chief influences that affected the Aden sea import trade were the disturbances in Abyssinia, which reduced by 78,266 *l.* the supply of ivory, and the consolidation of the Egyptian power on the Somali coast, which improved the imports of animals, coffee, gums, and skins. Almost every article is imported only to be exported after changing hands. As regards the land trade, imports rose from 194,555 *l.* to 195,585 *l.*, but exports fell from 100,591 *l.* to 87,447 *l.*: the decline being attributed to the levy by the Turks of an 8 per cent. duty on all goods leaving Aden by land. The rich produce of the highlands of

ADEN TRADE.

Yemen is brought into Aden by camels, large caravans of which arrive daily from the interior, and after a few days' rest again take their way home with return loads of suitable commodities; during 1876-7, 256,305 camels entered Aden, against 275,844 in 1875-6. Over 10,000 *l.* worth a year of kâât is imported from the interior of Arabia; this article is a plant (*Catha edulis*) reputed to possess stimulating and intoxicating properties, and therefore much in demand among the Arabs, to whom the use of liquor is forbidden by their religion.

X.

PUBLIC HEALTH AND SANITATION.*

HEALTH OF GENERAL POPULATION.

Bengal.

IN Bengal the collection of birth statistics in the general circles was attempted for the first time in 1876. Males were to females as 117 to 100. Birth registration fell off in the selected circles. Registration of deaths in the general circles has yearly improved. The system of registration in selected circles, not having been found satisfactory, has been abandoned. During 1876 the recorded deaths were 983,400, against 600,104 in 1875. The increase is ascribed to better registration; as, apart from the calamity of the cyclone wave and the subsequent cholera, the year was not in any way exceptionally unhealthy. Mortality from cholera increased, owing to the very severe outbreaks in Noakholly, Backergunge, and Chittagong, after the cyclone of 31 October 1876. Fevers destroyed 9·36 per 1,000 of the population, but the Sanitary Commissioner believes that the figures do not represent more than half the real fatality. The Burdwan fever has at length disappeared from that district, after having caused in 7 years a recorded mortality of 78,970, bringing 4,073,039 persons under medical relief, and costing Government 52,763 *l.* This fever arises from dampness of the soil and want of house drainage, and the people do not trouble themselves to build houses of bamboo well raised from the ground, or to sleep on raised beds or platforms of bamboo. They appear to believe that it is the duty of Government to undertake house drainage and the construction of sleeping platforms in all the houses of many of the largest villages of Bengal.

N. W. Provinces.

Birth-registration in the North-Western Provinces during 1876 was still very defective and mostly confined to the towns. Registration of deaths is said to be still too imperfect to admit of scientific analysis. Its accuracy is probably progressing, for the death-rate in 1876 was 23·3 per 1,000, the highest yet recorded in the provinces, notwithstanding a season of general prosperity among the poorer classes. One proof of imperfection is the fact that the returns for 1876 give the duration of life in the North-Western Provinces as 42 years, whereas the ascertained value of life in Europe is only 35 years. For the 81 municipalities, the death-rate was 32·51 per 1,000; but even this rate must be considerably under the true mark. Although the year 1876 was comparatively free from epidemic diseases, yet the registered mortality advanced from 671,491 in 1875 to 719,756. Cholera deaths fell from 41,106 to 26,304; but those from small-pox rose from 25,819 to 35,174; while an addition of nearly 40,000 deaths from fevers accounted for the principal part of the total increase. The general law which connects an excessive prevalence of fever with the introduction or extension of canal irrigation was very noticeable in the Cawnpore district; but the fever mortality is gradually falling to the normal standard in those districts of the Upper Doab, where an alarming increase of fever attended the extension of canal irrigation. This improvement is entirely due to the costly and important drainage works undertaken by Government of late years. In November 1876 there was a most violent outbreak in Kumaun of *mahámari*, or pestilence, which did not succumb to sanitary measures till the middle of 1877, after ravaging 40 villages, and attacking 291 persons, of whom no less than 277 died. Sanitary regulations (which date from 1854) for the prevention of this fatal malady have of late years been much neglected in Kumaun, the people having relapsed into their former filthy habits, living in houses encumbered with cattle and manure, and sleeping among heaps of damp grain. Special rules have lately been prescribed for the periodical inspection of all accessible villages by the district officers when in camp.

Oudh.

No register of births was kept up in Oudh. The efforts to improve the mortality statistics are meeting with some success; though the year was exceptionally healthy, the recorded death-rate was higher than in any previous year. Some of the municipalities were endeavouring to secure correct figures. In Ajudhia the rate was 61, owing to many persons having been brought to breathe their last at that holy place. The bathing fair there in February 1877 was attended by an unusually large multitude. Not less than a million and a

* For fuller information, *see* the Report on Sanitary Measures in India in 1876–7, presented to Parliament.

quarter of pilgrims visited the fair on the great bathing day, when a peculiar conjunction of planets, lasting four and a half minutes, took place in the early morning. Such a conjunction occurs but once in 80 years, and all who bathe and perform the prescribed ceremonies during these few minutes are supposed to secure salvation for themselves and millions of their ancestors. The rush to the river was very great, and 65 persons were killed. The loss of life would have been far greater, but for the exertions of the police and the district officers. HEALTH OF GENERAL POPULATION.

Returns for 1876 from the 180 municipalities, towns, and cantonments of the Punjab in which the bye-laws regarding birth-registration were in force, indicate a fair approach to a good system. Out of a total population of 1,840,342 the births registered were 35,949 males and 32,866 females, the percentage of male to female births being 109, as compared with 110 in 1875, and 111 in 1874. In addition to the above, 40 towns and rural circles voluntarily submitted birth returns. The registered mortality in the Punjab was very high during 1876, the number of deaths having risen from 316,713 in 1874 to 447,208 in 1875, and 496,844 in 1876. This great increase was due to an epidemic of autumnal fevers in certain districts, the fever deaths amounting to 351,286, against 279,841 in 1875. Cholera again visited the province, but the deaths from this cause fell from 6,246 to 5,736. There was a marked decrease of smallpox, the deaths being reduced from 13,594 to 10,254, the smallest number recorded in any year since mortuary registration has been in force. Punjab.

Steady progress is being made with registration in the Central Provinces, but much has yet to be done before the statistics can be considered trustworthy. Births registered rose from 261,906 in 1875 to 291,757 in 1876, and there was a nearer approach to the proper proportion of male and female births, the males being to females as 113 to 100. Deaths registered increased from 195,023 to 225,024. Owing to the prevalence of fevers and cholera, the year was undoubtedly an unhealthy one, and the death-rate given of 30·38 per 1,000 is probably much below the actual mortality. The abnormal character of the seasons occasioned a large amount of sickness; the mortality from cholera was greater than in any year since 1869. Fever accounted for two-thirds of the total deaths. With regard to smallpox, the year 1876 witnessed a decline of the epidemic that had begun in 1871, and had increased rapidly till 1875, and the deaths from this disease numbered only 3,819, as compared with 20,226 in the previous year. Central Provinces.

A census of British Burma is taken every year for revenue purposes. According to the one taken in 1876–7, the population was computed to be 2,942,605. The number of births registered during the year was 57,007; that of deaths was 42,401. Cholera appeared in an epidemic form at Akyab and Prome, and 3,678 deaths altogether were attributed to it. Smallpox accounted for 1,335 deaths, and fever for 24,728. British Burma.

According to the registration returns of the Ajmere and Mhairwarra Districts for 1876, there were 12,144 births recorded, or at the rate of 30·06 per 1,000 of the population; out of a total of 8,290 deaths, 18 were due to cholera, 765 to smallpox, and 4,345 to fevers. During the latter end of the year a more general outbreak of smallpox than usual occurred, but of a mild description, and especially attacking young children. Ajmere.

There were 85,326 births registered in the Hyderabad Assigned Districts during 1876, and 69,832 deaths, the excess of births being 7·2 per 1,000 over deaths, while in the preceding year, owing to the unprecedented mortality from cholera, the deaths exceeded the births by 3·4 per 1,000. These ratios are, however, calculated on the basis of the census returns for 1867. New rules for the registration of vital statistics were brought into force in March 1876. The total mortality of 1876 was 69,832 as against 88,068 in 1875, and 60,797 in 1874. The public health was fairly good, notwithstanding the high prices of grain, which led many of the poorer class to eat food that had deteriorated by long keeping. Deaths from fevers, however, increased from 26,076 to 39,875, and there was a resuscitation during eight months of the cholera epidemic of 1875, causing the death of 2,683 persons, as compared with 22,465 in 1875. Berar.

In 1871 the population of Mysore was reckoned as 5,055,412. During 1876-7 only 34,402 births were registered, the ratio being 6·8 per 1,000 of the Mysore.

HEALTH OF GENERAL POPULATION.

population. The excess of registered deaths over births proves the defective character of this branch of registration. Registered deaths numbered 54,265, the mean registered ratio of mortality for 5 years being 10·13 per 1,000, and that for 1876-7 being 10·73. Cholera carried off 12,087 persons, and smallpox 1,059; while 23,934 deaths were set down to fevers.

Coorg.

During 1876-7 the births registered in Coorg were 1,832, and the deaths 3,733, the ratios per 1,000 of the population according to the census of 1871 being respectively 10·88 and 22·18. The same remarks apply here as in the case of Mysore.

Madras.

The population in the Madras Presidency, under the operation of the rules for the registration of vital statistics, is 29,157,056, or nearly two and a half millions less than the entire population according to the census of 1871. In 1876 the number of births registered was 632,113, or 21·6 per 1,000; while the number of deaths was 693,654, or 23·7 per 1,000, against 18·1 per 1,000, the average of the 5 years preceding. The remarkable effect of the scarcity of food on the health of some of the districts in 1876 is indicated by the fact that in Madras the death-rate rose from 34·8 to 38·9; and in Kurnool, from 23·4 to 41·3. The total deaths registered rose rapidly from 45,053 in October to 88,027 in December. Cholera, which had broken out in Tanjore in April 1875, continued its fatal course, and claimed 148,322 victims, against 94,657 in the preceding year. Famine being so widely prevalent prepared the victims for the pestilence. Malarial fevers did not prevail to the usual extent, owing probably to the absence of rain and to prolonged drought. The total deaths ascribed to fevers were 230,181, as compared with 252,131 in 1875.

Bombay.

In 1876 the births registered in the Bombay Presidency rose from 340,829 to 345,484, and the deaths fell from 375,718 to 368,260. The cholera epidemic of 1875 continued during the whole of 1876, and occasioned 32,117 deaths. Smallpox caused 11,817 deaths in 1876, or 8,356 more than in 1875; in Bombay city alone there were 3,145 deaths from this disease. Fever caused the death of 220,833 persons. Hereditary syphilis is said to be increasing to an alarming extent, both in the capital and the whole presidency.

VACCINATION.

Bengal.

Vaccination is slowly gaining ground in Bengal. In the metropolitan circle the people frequently ask and pay for the service of vaccinators. Great objection is still shewn to taking virus from the arms of children. The total number of operations rose from 1,086,373 in 1875-6 to 1,509,034 in 1876-7.

N.W. Provinces.

The vaccination results of 1876-7 indicated fair and encouraging progress in the North-Western Provinces. Operations rose in number from 529,207 to 624,769, and there was an improvement in the individual work done by the operators, whose number increased from 453 to 517. The number of females vaccinated is always in excess of that of males. This preponderance is attributed to two causes; one, the hope that vaccination will kill them; the other, that it may save their faces from pitting, and render them more attractive in the matrimonial market. Mahomedans are found to be the best vaccinators, as they are more energetic and pushing than Hindus; but regard to Hindu prejudices forbids the employment of more Mahomedans than half the entire number of vaccinators.

Oudh.

The ill success of efforts to overcome the prejudice of the Oudh population against vaccination is very disheartening. There was a fall in the number of operations from 27,656 in 1875-6 to 23,661 in 1876-7. The proportion of males to females was more than 14 to 9.

Punjab.

There was a falling off both in primary and secondary vaccinations in the Punjab, the number of operations having respectively declined from 427,971 to 398,167, and from 8,244 to 7,783. The cost of each successful operation averaged about 3 annas.

Central Provinces.

In the Central Provinces the total number of vaccinations by the Government establishments increased by 25 per cent. over the results of the previous year, but the work done by dispensaries was not creditable to the hospital assistants in charge. Since the close of the year orders have been issued that vaccination be taken up as a regular part of an hospital assistant's work. Opposition was shewn to an attempt to force vaccination on adults, but prejudices can generally be overcome by proper management.

VACCINATION.

The practice of vaccination is slowly but surely gaining ground in British Burma, although in many parts a deeply rooted prejudice against it is still to be found. Unless smallpox breaks out as an epidemic, it is most difficult to induce persons to submit to the operation. Dread of subjecting themselves or their children to pain is stronger than any real prejudice against the practice. The number of operations in 1876-7 was 28,065, of which 23,285 were successful. British Burma.

Though smallpox is in most years a virulent scourge of the Ajmere and Mhairwarra Districts, yet vaccination is still unpopular, and the staff of vaccinators inadequate. Ajmere.

During 1876 the total number of successful vaccination operations in Berar was 69,319. The difficulty of inducing Mahomedan parents to allow their children to be vaccinated still continued. The vaccination establishment was remodelled during the year, the total expenditure being slightly increased, but the average cost of each successful case was reduced. Berar.

In Mysore the number of operations effected during 1876 was 97,063 as against 98,848 in 1875, and 97,513 in 1874. The decline was owing to the vaccinators being partly employed on cholera duty, and to the disturbing influences of cholera and scarcity on the minds of the people. Mysore.

During 1876-7 the number of persons vaccinated in Coorg was 1,359, being an increase of 122 over the number in the previous year. At the close of the year the vaccination establishment was put on an efficient and adequate footing. Coorg.

Owing to various causes, among which the presence of epidemic smallpox was perhaps the most important, the number of vaccinations in the Madras Presidency was greater in 1876-7 than in any previous year, being 483,192 against 381,412 in 1875-6, and 279,893 in 1871-2. New rules were issued for the vaccination department. Popular prejudices against vaccination are growing weaker throughout the country. Madras.

The Bombay vaccination department was placed under the direct control of the Sanitary Commissioner in November 1876. The total vaccinations rose from 808,353 in 1875-6 to 815,177 in 1876-7. Bombay.

MEDICAL RELIEF.

The number of patients treated at the medical institutions of Calcutta and its suburbs fell from 313,462 in 1875 to 310,016 in 1876. In the mofussil the number of charitable hospitals and dispensaries rose from 207 to 230, and the number of their patients from 720,739 to 832,287. Of the 34 temporary dispensaries open on 1 January 1876 in the Burdwan, Midnapore, and Beerbhoom districts, 9 were made permanent, and the rest were closed. Rules for facilitating the sale of Government medicines came into force on 1 April 1876, and were followed by a marked increase in the sales of quinine. A collection of 251 specimens of the indigenous drugs of Bengal was forwarded to the museum at Netley, and similar collections were supplied to 5 of the principal medical institutions in the Presidency. Bengal.

The number of dispensaries in the North-Western Provinces advanced from 154 in 1875 to 157 in 1876, and of patients treated from 793,765 to 846,675. These figures point to the growing popularity of the dispensaries, and the decreasing predilection for unskilled native practitioners. N. W. Provinces.

Besides two institutions not under supervision, there were 48 hospitals and dispensaries open in Oudh throughout 1876-7, the number of persons treated being 243,016 as compared with 243,045 in 1875-6. At the beginning of the year, when cholera made its appearance, a temporary cholera hospital was opened wherever required. Some itinerant native doctors were employed to visit the people at their homes. Oudh.

The number of institutions affording medical relief in the Punjab was increased to 163 in 1876 by the opening of 6 new dispensaries, and the addition of 7 in the Gujrát district previously supported by a special district fund. The number of patients rose from 1,037,835 to 1,212,010, of whom 32,915 were treated in the Mayo Hospital at Lahore. The total cost of maintaining all the institutions was 32,115 *l.*, of which 10,703 *l.* was met by Government. Punjab

There were 76 dispensaries in the Central Provinces at the end of 1876, one having been closed during the year from want of local support. The institutions are fairly successful, and Native gentlemen continue to take an interest in them. Of the total patients, only 19 per cent. were women, a very small proportion. It is possible that adequate arrangements are not made for securing Central Provinces.

MEDICAL RELIEF.

privacy. Some of the hospital assistants in charge of outlying dispensaries are described as inefficient and apathetic.

British Burma. Natives of British Burma are still very reluctant to accept implicitly our medicinal remedies, although every year sees a fair advance towards demolition of the popular prejudice. There were 18 dispensaries open throughout 1876, and the attendance of patients rose from 64,730 in 1875 to 69,675.

Ajmere. Altogether 26,926 patients were treated in the seven dispensaries of the Ajmere and Mhairwarra Districts during 1876, the number shewing an increase over that of the preceding year.

Berar. The number of persons treated in the medical institutions of the Hyderabad Assigned Districts is rapidly increasing, the number in 1876 being 90,779 as against 77,318 in 1875. In 1870 only 33,980 persons received medical relief. A new dispensary was opened, raising the number to 24.

Mysore. In addition to 11 dispensaries already in operation at the end of 1875 in Mysore, 8 others were opened during 1876. In and out patients together numbered 137,663, or 18,670 more than in the previous year. Some of the institutions were temporarily closed during the period of distress, in consequence of the migration of the people to centres of relief, and the employment of the medical subordinates elsewhere.

Coorg. The two civil dispensaries in Coorg were during 1876 attended by 9,753 patients, being an increase of 1,088 over the numbers of the previous year.

Madras. At the close of 1875-6 there were 134 charitable hospitals and dispensaries in operation throughout the Madras Presidency, and 22 new institutions were opened in 1876-7, making a total of 156. A large number of new hospitals would have been opened, but for the want of suitable medical agents. The education of a class of subordinates for civil duties only, and the proposed extension of medical schools will, however, in course of time permit of the more rapid development of the medical relief system. The total of in and out patients for 1875-6 was 754,348, and for 1876-7 it was 767,451.

Bombay. The transfer of the Bhuj dispensary made the number of civil hospitals in the Bombay Presidency 46, which treated 27,008 indoor and 237,760 outdoor patients, against 26,857 and 231,051 respectively in 1875. The number of dispensaries rose from 122 to 129, of which 106 are supported partly by local help and partly by Government grants, 8 are endowed, 9 are supported entirely by Government, and 6 by rulers of Native States. The in-patients numbered 5,876 and the out-patients 578,667, against 5,605 and 552,014 in the previous year.

LUNATIC ASYLUMS. As compared with the number of the population, very few lunatic asylums exist at present in India. In the provinces under direct British administration only one person out of every 38,000 was under asylum treatment during 1876.

Bengal. By the opening of the Hazáribágh Asylum the number of these institutions in Bengal was brought up to 7, while the number of patients in confinement rose during 1876 from 1,131 to 1,147. Gánja was accountable for 30·66 per cent. of the total cases treated. Criminal lunatics rose in number from 232 to 269. Calculated on the daily average strength, the net cost to Government of each patient was under 8 *l.* 10 *s.*

Assam. On 1 April 1876 an asylum was opened for the reception of patients at Tezpur in Assam. During the remaining 9 months of the year altogether 64 patients were admitted, of whom 8 were discharged and 9 died. As regards situation, the asylum is well placed, but in its present condition it cannot be looked on as anything else but a temporary makeshift.

N. W. Provinces. At the 3 lunatic asylums of Bareilly, Benares, and Agra, in the North-Western Provinces, the total number of insanes under treatment during 1876 was 854. Of criminal lunatics under confinement the average daily number was 91, the highest average yet attained. Contributions from friends of the patients amounted to only 42 *l.*, but this sum included 12 *l.* from the military department for three sepoys; and the cost per head to Government calculated on the daily average strength was about 7 *l.*

Oudh. The only lunatic asylum in Oudh is at Lucknow, where there were 233 patients under treatment during both the years 1875 and 1876.

Punjab. In the Punjab there were 474 patients under treatment during 1876 at the 2 lunatic asylums at Lahore and Delhi. One third of the insanity is said to be due to excessive indulgence in liquor or intoxicating drugs. Calculated on the average daily strength, the yearly cost of each patient came to about 9 *l.*

Altogether there were 326 patients during 1876 under treatment in the 2 lunatic asylums at Nagpur and Jubbulpore in the Central Provinces. Grief appears to be the chief moral cause of the insanity; but physical causes are more common, especially the use of gánja. LUNATIC ASYLUMS. Central Provinces.

Rangoon Lunatic Asylum had 214 insanes under treatment during 1876; and, calculated on the average daily strength, the cost to Government of each patient was about 8 *l.* British Burma.

As there is no lunatic asylum in the Ajmere and Mhairwarra districts, certain non-criminal lunatics who had been for some time past confined in an inclosure at the back of the Ajmere dispensary were in 1876 forwarded, with the sanction of the local administration, to the care of the superintendent of the Delhi Lunatic Asylum. Ajmere.

Pending the construction of the asylum at Amráoti, all Berar lunatics, criminal and civil, were confined during 1876 in the Amráoti Central Jail. Their aggregate number was 27. Berar.

During 1876 the average number of inmates in the Mysore Lunatic Asylum was 142, the total treated during the year being 211, inclusive of 13 criminal lunatics. There were 33 deaths. The average cost of each native patient was about 13 *l.* a year. Mysore.

In the Madras Presidency the total number of insanes under treatment during 1876-7 in the 3 asylums at Madras, Vizagapatam and Calicut was 516. Of the 172 admissions during the year 126 were males and 46 females. Caste prejudices prevent many Eastern women from being sent to public hospitals. The number of criminal lunatics rose from 118 to 125; separate accommodation is required for this class of patients. The average cost of the maintenance of each patient was about 17 *l.* at Madras, 13 *l.* at Vizagapatam, and 8 *l.* at Calicut. Madras.

During the year 1876 there was a decrease in the total number of insanes under confinement in the asylums of Bombay Presidency from 874 to 846, of whom 697 were males and 149 females. Criminal lunatics numbered 109, or 8 less than in 1875. The chief ascertained cause of insanity was the use of gánja and intoxicating drugs. The average cost of the maintenance of each unatic was 14 *l.* Bombay.

There are 5 schools of medicine in Bengal, the Medical College in Calcutta, the Campbell Medical School at Sealdah, the Temple Medical School at Bankipore, the Dacca Medical School, and the Cuttack Medical School. The total number of students declined from 1,255 in 1875-6 to 1,038 in 1876-7, owing mainly to the enforcement of stricter rules in connexion with the course of study. MEDICAL SCHOOLS.

The Balrampur Medical School in Oudh was opened in April 1873; of the 14 first year's students, 9 obtained certificates in 1876, and took service under Government as passed medical pupils. Oudh.

In the upper department or English class of the Lahore Medical School in the Punjab, there were 47 students at the end of 1876, of whom 12 belonged to the North Western Provinces. Since the establishment of the school in October 1870, 61 students had attained the grade of assistant surgeon. In the lower department or Urdú class there were 84 students at the end of 1877. This class prepares hospital assistants and Native doctors. Puujab.

The Nagpur Medical School in the Central Provinces completed its 10th session, and its history continued encouraging. The attention, however, of the Chief Comissioner was drawn to the unfavorable character and calibre of some of the pupils, and a reconsideration of the present system of selection has been ordered. Central Provinces.

The number of students attending the classes of the Madras Medical College has risen from 88 in 1874-5 to 116 in 1875-6 and 143 in 1876-7. Satisfactory progress is reported. One student passed the first M.B. examination; and two others the preliminary scientific examination of the Madras University. Female students numbered 37. Towards the end of the year, when cholera and small-pox were raging in Madras, a number of students were employed to assist the Special Health Officer in house to-house visitation. Madras.

At the Grant Medical College in Bombay, the number of students in 1876-7 declined from 314 to 286. The progress made in the University classes was satisfactory. Ten students went to England to complete their medical education, or to compete for the covenanted medical service of India, and two students, who had qualified in England, obtained commissions. Bombay.

SANITATION.

India.

In October 1876, a committee appointed by the Government of India to consider the question of land quarantines in India, sent in their report, and in consequence a set of rules was laid down by the Government for future observance on the outbreak of cholera or smallpox in cantonments. So far as cholera is concerned, the revised rules, while not dogmatically assuming that there is no truth in the theory of importation, uphold the principle that the seat of the evil lies in local conditions, and that the remedy is departure from the affected locality. Isolation of patients is not, however, held to be a necessity. Camping-grounds have been selected in the vicinity of every cantonment. Measures of precaution in the way of cleanliliness, good conservancy, &c., are strongly enjoined. In dealing with smallpox, regard is to be had to its infectious character and to the complete isolation of patients. Similar measures are also enjoined on civil officers as far as circumstances will admit; the supreme importance of measures of sanitary improvement is pointed out, and in particular when great numbers of people congregate at fairs.

A proposal to institute a systematic analysis of potable waters at civil stations in India, as was done some years ago for military stations, has resulted in the appointment for a period of two years of one trained assistant surgeon to conduct local analyses, wherever necessary, throughout the Bombay Presidency Nothing of a systematic kind is yet being done in the other Presidencies, owing to want of funds; but the Bengal Government have taken some action in the matter.

Bengal.

A report was made by the Committee appointed by Sir R. Temple to inquire into the obstructions to drainage in the districts around Calcutta, with the view chiefly of testing by local inquiry the theory advanced by Rája Digumber Mitter regarding the causes of the severe fever which had for some years prevailed in Bengal. He maintained that by the construction of roads and embankments the natural drainage of the country had been obstructed, and that this was the sole cause of the fever. After carefully examining the places specified by him, the Committee decided that artificial obstructions had little connexion with the outbreak of fever; but, on the other hand, they could not dispute the position that the saturation of the subsoil in the deltaic districts of Bengal was one chief cause of fever, or that the saturation might have been aggravated, of late years, by both natural and artificial changes. The financial condition of Bengal renders it impossible to undertake anything like a general system of district drainage at the cost of the public revenues. District officers and municipalities have, however, been directed to devote special attention to drainage questions, and the Public Works Department has been warned against letting any roads interfere with the outfall. Some progress was made with the drainage system of Calcutta, and the conservancy of the town generally is said to have been well attended to. It is said that the mercantile community of Calcutta fully appreciate the necessity for the appointment of the Health Officer for the port, as the only alternative to the introduction of regular quarantine regulations, with their attendant vexatious burdens upon commerce. Filtered municipal water is supplied to the shipping at a fixed charge of 8 rupees per 1,000 gallons. In 1876, 949 vessels, with crews aggregating 18,980 men, were supplied with an average quantity per head of 359 gallons. Steamers are allowed to use the water for filling boilers on leaving port.

Throughout the rest of Bengal sanitary progress was as usual not very marked, owing principally to want of money and to the apathy of the people. Of the total income of the municipalities only about 24 per cent. was expended on works of a purely sanitary nature, all being small works of local interest. The scheme for the supply of water to Burdwan was finally abandoned for want of funds. Efforts made to improve the sanitary condition of Chittagong appear to have been frustrated by the opposition of the native community.

N. W. Provinces.

Although among the civil sanitary works executed during 1876 in the North-Western Provinces there were none of great importance, yet almost every district had something to shew at the close of the year. The drainage scheme in Meerut was well advanced.

Oudh.

The total municipal expenditure on sanitary works and services in Oudh was 10,913 *l.*, against 9,029 *l.* in 1875. The only work worth particular mention was that connected with the drainage of Lucknow. Sanitary arrangements at most of the large fairs were good, and at one only was there any epidemic sickness.

SANITATION.

The attention of irrigation and sanitary authorities in the Punjab has been specially directed to the question of drainage, and the reduction by this means of the mortality from malarious and intermittent fever. With this object the realignment of the Western Jumna Canal is being effected. The Sanitary Commissioner in 1875 prepared, under instructions from the Lieutenant Governor, a pamphlet on the principles of sanitary science, and read it to 18 district committees, with a view to impress on them the necessity of improving the sanitary condition of villages under their jurisdiction, as there could be no doubt that the terribly high mortality from fevers was mainly due to insufficient clothing and food and insanitary dwellings. This address excited great interest, and a large number of copies was printed and circulated. It has been proposed to print 20,000 additional copies in Hindi for further and wider circulation. Town improvements, sanitary and conservancy arrargements, and improved water supply, were being attended to as far as funds could be made available. Government sanctioned a loan of 110,000 *l.* for carrying out the waterworks project for the city and station of Lahore. Punjab.

No important sanitary works were undertaken during the year in the Central Provinces; but in all large towns increased attention was paid to conservancy, drainage, and the supply of pure drinking water. The people are being gradually enlisted on the side of sanitary improvements. The system of conservancy established in 1873 at Nagpur worked admirably, and the number of towns adopting, or proposing to adopt, a similar system is ever increasing. Central Provinces.

In British Burma, during 1876–7, sanitary measures were undertaken in the municipal towns of Rangoon, Bassein, Prome, and Akyab. Markets were cleansed and supplied with water, roads and drains were improved, swamps were filled up, and activity was shewn in the introduction and enforcement of conservancy arrangements. In Rangoon, a project was sanctioned for supplying the town, at an estimated cost of 80,000 *l.*, with pure water from reservoirs at a distance. Sanitary advance throughout Burma generally is greatly retarded by want of money. British Burma.

At the Pushkar fair, a large annual Hindu gathering, the conservancy arrangements were most successful; and there was no sickness at the two small Mahomedan Urs fairs, where the arrangements were good and complete. Ajmere.

The reduced state of local funds during 1876–7 impeded the work of sanitary improvements in the Hyderabad Assigned Districts, and in some villages conservancy establishments had to be abolished. Two out of the 41 fairs held during the year were dispersed on the appearance of cholera in the vicinity. At all the gatherings conservancy arrangements were duly maintained. Berar.

The effect of sanitary operations on the health of the towns in the Madras Presidency is satisfactory, though in many cases the work performed and the money available are inadequate to requirements. It appears that in towns where sanitary expenditure is high the death rate is low, and *vice versâ*. Little improvement has been effected in the sanitary condition of towns and villages which are not under municipal government. A larger proportion of municipal funds was devoted to conservancy than to any other object of the Municipal Act. No important sanitary work seems to have been carried out in any of the towns. The water supply and drainage of Madras town were in a bad state; but a bill to provide an effective system of drainage was under the consideration of the Government. Madras.

Sanitary organisation is much more complete in the Bombay Presidency than in any other part of India. By an arrangement that came into active operation in 1876, the whole vaccination service was brought into subordination to the Sanitary Commissioners, its officers acting as sanitary inspectors and advisers all over the country. Some progress was made during 1876–7 with various sanitary works of the Bombay Municipality, and the municipalities in the interior devoted a considerable portion of their income towards objects for the promotion of the public health. Bombay.

XI.

EMIGRATION.

EMIGRATION. Bengal.

The number of emigrants despatched from Calcutta to the colonies was 24,569 in 1873-4, 20,230 in 1874-5, 9,251 in 1875-6, and 7,734 in 1876-7. The famine gave a stimulus to emigration in the two earlier years, but plentiful harvests do not entirely account for the remarkable slackness of emigration in the two last. Assam has begun to compete with the colonies in procuring labourers from Behar and the Upper Provinces. With increasing demand for labour in India and abroad, and competition among recruiters, the supply, large as it is, is becoming less and less accessible, and greater inducements are year by year becoming necessary to prevail on the people to leave their homes. Even in the Patna Division, where the cultivating classes are generally involved in debt, the number of emigrants seems yearly to decrease, falling from 7,159 in 1874-5 to 4,482 in 1876-7. Not one emigrant was in the latter year recruited from Sarun, the most densely populated tract in the whole division. The district officers believe that it is only gradually, with the spread of education and removal of ignorant prejudices, that any general tendency to emigrate is likely to arise. The opening of the Tirhut Railway did something to stimulate temporary emigration for the purpose of finding work; and it might be useful if the Colonial Governments would send to Behar as recruiting agents their most successful Behari settlers. It would be a great gain to the country if the yearly demands of the British colonies at least could be fully met. The greatly improved circumstances of the many labourers who return to their homes with considerable savings, enlarged ideas, and some education, shew how great are the advantages to the Indian emigrant of a short residence in the colonies. There can be little doubt that, if recruiting operations were generally conducted with ordinary moderation and honesty, the full number of labourers annually required for the British colonies could be procured. The total number of labourers required during 1876-7 by the several colonies, British and foreign, was 12,965 statute adults, but only 7,138½ statute adults were despatched. Jamaica did not require any labourers during the year. The prohibition on emigration to Cayenne or French Guiana, and to Surinam or Dutch Guiana, continued in force. Trinidad was the only colony that succeeded in getting the full number of emigrants required. Of Demerara and Mauritius not more than half the requirements were met. Natal could procure only 715 out of 2,730. This colony obtained a number of labourers from Madras, but in Bengal it could not compete with Mauritius and the West Indies, which are better known to the people. The condition of the Indian labourers in Natal is most satisfactory, and it is probable that this colony will have no difficulty in procuring labourers when the facts concerning it are more generally known in India. The condition of Indian subjects in Cayenne and Guadeloupe is a matter for grave concern. In Cayenne the coolies are compelled, by means of a system of only 14 days' labour in the month, to spin out their 5 years' period of service, or 1,560 days, over some 10 years, after which they are as poor as when they began. It appears, moreover, that the promised free return passages, although fairly earned, have been very long delayed both in Cayenne and in Guadeloupe; and, though there must have been numbers of coolies ready to return to India from both Cayenne and Guadeloupe, yet it is said that not one returned in in 1875 or 1876.

The number of labourers and dependents despatched to the tea districts fell from 29,314 in 1875-6 to 24,317 in 1876-7. Of these 18,239 proceeded to Assam, and the remainder to Cachar and Sylhet; 842 recruiters were licensed during the year. The great increase of dishonest recruitment, the laxity in the local medical inspections, and the number of labourers who absconded, rendered necessary the adoption of special preventive measures after the close of the year.

N. W. Provinces. Measures were taken to encourage and facilitate emigration from the more thickly populated tracts of the North Western Provinces to eligible locations in the Central Provinces, but without much success.

EMIGRATION.

Oudh.

Emigration from Oudh has declined yearly since 1873-4, when the number of emigrants was 7,568. In 1876-7 the number registered was 1,572, of whom 791 were enlisted for Demerara.

British Burma.

Emigration of natives of British Burma to other countries is of very rare occurrence. Immigration is unceasing from all quarters. Importation by the State of Bengali immigrants ceased at the close of 1876. Arrangements for the introduction of Madras immigrants, under the *British Burma Labour Law* of 1876, were in progress during the year, but were not perfected till April 1877, when recruiting began immediately. The true want of Burma is a settled agricultural population of Burmans or Shans to cultivate the extensive tracts of waste land in the interior. There is little if any real difficulty as to labour in the seaport towns.

Berar.

About 2,498 persons emigrated from Berar during 1876-7, while 39,229 persons immigrated into the province. These latter came chiefly from the famine-stricken districts in the Bombay and Madras Presidencies, and would in all probability return to their homes when permitted so to do by circumstances.

Mysore.

According to the returns of the protector of emigrants at Madras, 139 persons emigrated from Mysore during 1876-7 to the French Colonies, as compared with 135 in the previous year; while 154 emigrants returned to India, mostly from Réunion. Owing to the want of pasturage in the autumn of 1876, the people migrated in large numbers with their cattle to the hill tracts of the western taluks, and the expectation of finding labour on easy terms in coffee-picking in Coorg, the Wynaad, and Nilgiris, led them to move off in far larger numbers than usual to those districts.

Coorg.

In Coorg the labour market was well supplied with coolies who migrated from the Mysore districts in consequence of the famine.

Madras.

In the Madras Presidency during 1876-7 emigration to the British colonies, regulated by India Act VII. of 1871, increased, but not to a very great extent. The emigration to Ceylon was considerably more than double that for the previous year, the increase being the result of distress in the Madura and Tinnevelly districts. The climate of Cayenne was found to be prejudicial to the health of Indian emigrants, and arrangements were accordingly made under the orders of the Government of India for stopping emigration to that colony. With a view to increase emigration to Natal, which cannot get a sufficient supply of labour from Calcutta, an agency was established at Madras. Preliminary arrangements for bringing the *British Burma Labour Law* (India Act III. of 1876) into operation were not perfected during the year. In connexion with Act V. of 1877, which was passed by the Government of India to regulate emigration to the Straits Settlements, an agent was appointed at Negapatam to facilitate emigration to that colony. There was no emigration during the year to the French colonies from Madras, but 2,826 emigrants sailed thither from Pondicherry and Karikal.

Bombay.

A large self-organised migration occurred among a section of the aboriginal population of Gujarát. The people who migrated were 1,867 families of the tribe called Taláviás, a hard-working, but poor race of cultivators, who had long been anxious to leave the more thickly-peopled parts of Gujarát, and settle where they might find fields of their own. Their choice fell on the tracts of waste and wood land surrounding the great hill of Chámpánir, or Pawághar, on whose summit is the most holy shrine of their chief goddess, Kálka Devi, or Kálka Máta. Several efforts have, under the British Government, been made to induce cultivators to settle in these lands, and colonies have before this been more than once established. But, on each occasion, the settlers have, after a few months, been stricken with fever, and, losing heart, have returned to their old homes. In March 1877, the Taláviás left their fields and homes in Baroda and Broach, and unexpectedly came trooping with their carts, household furniture, goats, and cows into the brushwood and foreign lands round Pawághar. These, for years past the haunt of tigers and panthers, became in a few days a vast fair. Old wells were cleared out, and yielded good supplies of water. Camps were formed with rough huts, and cattle sheds for each family. The originator of the movement was a guru, who had declared that the goddess Kálka Máta would give a manifestation on 22 March of her desire to bring the people to Pawághar, their ancient home. The fulfilment of the

EMIGRATION.

promise was eagerly looked for, and the absence of any manifestation on the date predicted was taken as a proof that the migration had not the favour of "the Mother." Thereupon most of the immigrants started for their old homes. Of the original 1,867 families, only 685, with among them 10 carts, 57 ploughs, 133 bullocks, and about 250 cows and goats, remained. Their settlements form 12 new hamlets. With the help of special advances from Government, the settlers have been able to finish their houses, to buy about 900 head of cattle, to prepare for sowing about 2,350 acres, and to sow about 798 acres of land. Though the rainy season has been unfriendly to the new settlers, Government hope that the Talávia colony at Chámpánir may succeed, as the colonists have been almost free from fever, and the land has proved to be fertile.

XII.

EDUCATION.

Though the Department of Education in Bengal suffered seriously from the financial retrenchments of 1876-7, yet the Government educational system gave a satisfactory proof of its general soundness and vitality by the marked increase in the number of schools and colleges under inspection, and of pupils attending them. The increase was, in schools, from 17,850 to 21,478, and in pupils from 535,804 to 589,351; but the improvement was almost entirely in institutions unaided by a Government grant, the number of these having risen from 2,358 with 66,111 pupils to 5,629 with 120,517 pupils. The Government contribution to education was 240,300 *l.* in 1875-6, towards a total expenditure of 418,900 *l.*; in 1876-7 it was 225,200 *l.* towards a total expenditure of 423,400 *l.* There has been a marked and satisfactory increase in the funds contributed by the people themselves, the amounts being 166,800 *l.* in 1874-5, 178,600 *l.* in 1875-6, and 198,200 *l.* in 1876-7. In the returns of aided institutions for 1876-7 intermediate schools appear for the first time as the lowest rank of secondary schools. In the previous year intermediate English schools did not exist, and intermediate vernacular schools were included in the primary class. There was a considerable decline in the number of schools in the primary class and in the number of middle schools in the secondary class. The middle schools are found to be the weakest part of the Government educational system. Candidates from Bengal schools and colleges were very successful at the University examinations. Attendance at the colleges rose from 1,404 to 1,792; the cost for the year of each student in Government colleges averaged 40 *l.*, and in aided colleges 30 *l.* As regards special instruction, it appears that the professions of law, medicine, and engineering have, from their being overstocked, become less attractive to students; the native bar is overcrowded both in the metropolis and the mofussil; and students from the vernacular medical and surveying schools are dangerous rivals of the higher class University graduates and qualified engineers. The subscriptions realised for the Bankipore Industrial School fell very short of the amount promised; only 4,200 *l.* was in the hands of the Committee at the end of 1876-7; and a small experimental establishment for two years was about to be started, with a subsidy from Government. In the Calcutta Music School (established in 1871) there were 51 pupils on 31 March 1877.

STATE OF EDUCATION. Bengal.

At the close of 1876-7 there were in Assam 1,133 schools, containing 31,925 pupils, as compared with 1,137 schools and 31,462 pupils in the previous year. The expenditure from all sources fell from 26,012 *l.* to 25,497 *l.*, the contributions of the people of the province rising from 29 to 32 per cent. During the year 1 out of every 129 persons in the plains and 1 out of every 95 persons in the hills went to school, the favorable percentage in the hill districts being due to the Khási Hills missionaries.

Assam.

The Government of the North-Western Provinces issued instructions in 1876 requiring strict adherence to the rules regulating grants-in-aid for educational purposes. The principle was laid down that educational officers should not receive fees for examination work in connexion with Government institutions. Various educational retrenchments were effected in 1876-7. The Bareilly College was closed on 31 December 1876, the three remaining colleges at Agra, Allahabad, and Benares being enough for the needs of the Provinces. The roll of these three institutions stood at 192, against 176 in the previous year. It was also found advisable to abolish the Anglo-Sanskrit department of the Benares College. The results of a prolonged trial of nearly 30 years were most disappointing, and quite disproportionate to the heavy expenditure incurred. Every student was a holder of a State scholarship, the withdrawal of which was tantamount to cessation of attendance. The object of the department, viz., the production of a body of vernacular literature fitted to communicate, in a familiar form, the results of European research to the people of the country, was never attained. *Halkabandi* (or village) schools, which form the backbone of the educational system as at present constituted, received the careful attention of

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Government, in view of enlarging their efficiency and success. The total number of all classes of scholastic institutions fell from 10,069 with 262,394 pupils at the end of 1875-6 to 9,563 with 245,270 pupils at the end of 1876-7, but the information regarding unaided schools was very incomplete.

Oudh.

The number of schools in Oudh was 1,420 in 1875-6, and 1,443 in 1876-7, and of scholars 65,211 and 69,030. A sum of 54,262 *l.* was expended during 1876-7. Of 105 candidates from Oudh schools at the Calcutta University entrance examination, 60 passed, the highest total yet reached for the province. During the last few years the aim has been rather to increase the efficiency of existing village schools than to open new ones. An increase, however, of 7 schools brought their number in 1876-7 to 1,136, while that of scholars rose from 46,071 to 49,115.

Punjab.

In the Punjab the number of Government institutions rose from 1,585 to 1,601 in 1876-7, but aided schools decreased from 480 to 470. The average daily attendance of scholars during 1876-7 in the former was 73,545, an increase of 1,687, and in the latter 19,899, a decrease of 2,524, mainly caused by the prevalence of fever throughout most of the province. Thus the net decrease in attendance was 837. The 2 Government colleges at Lahore and Delhi contained 142 students on the rolls at the end of 1876-7, as compared with 113 in the previous year. Delhi College was abolished at the close of the year, and the majority of the students joined the college at Lahore. The actual expenditure on education was 102,514 *l.*

Central Provinces.

The work of education in the Central Provinces progresses but slowly. The number of scholars during the year increased from 82,323 to 83,441. Among the great mass of the population there is no desire for education, and schools started under pressure by local officers collapse at once when the pressure is withdrawn. Parents have the feeling that the knowledge acquired by their sons does not bring in a money equivalent, nor make them more efficient in their occupation. Real desire for education is almost confined to towns. The most satisfactory features of the year's history were the progress of middle and high class education, and improvement in most primary schools in numbers, attendance, and scholarship.

British Burma.

The principle upon which the educational policy of Government in British Burma is based is that the instruction of the people at large, and not of any portion or section of them, is the only legitimate object of State intervention, and that this must be effected, as far as possible, through the agency of existing indigenous institutions. Buddhist monasteries, which form by far the most important class of Native schools in Burma, are the best auxiliaries of the Education Department. The results obtained by the Department in 1876-7 were most successful. The number of schools of all classes under State control increased from 1,206 to 1,310, and the pupils in attendance from 38,447 to 47,787.

Ajmere.

As regards education in Ajmere, the census taken on 1 April 1876 shewed that about 4·94 of the total population were to some extent educated. Taking the sexes separately, 4·85 per cent. of the males can read and write; but only 0·09 of the females. During 1876-7, the funds available for public instruction were redistributed, and the schools rearranged, with the object of spreading elementary teaching more widely, the number of village schools being largely increased. The number of all classes of educational institutions rose from 124 with 4,831 scholars in 1875-6, to 157 with 4,902 scholars in 1876-7. Students from the Ajmere Government College were remarkably successful at the university examinations. At the Mayo College, which was opened in October 1875, the number of pupils increased from 23 to 31, and the boys were receiving a good education, and being taught the manners of young gentlemen, and the manly exercises and sports of English schoolboys. Sanction to dig the foundations of the main building was not received till after the close of the year. A great future success is expected for this institution.

Berar.

Education progresses slowly in Berar, as is usual in an agricultural province. The attendance during September 1876 was the highest yet reached, but there was a subsequent falling off due to the high prices of food grains, which caused the poorer classes to withdraw their children from school. At the close of 1876-7 there were 697 schools, containing 26,349 pupils, as compared with 705 schools, containing 26,668 pupils in 1875-6. Expenditure decreased from 38,086 *l.* to 33,474 *l.*

In Mysore during 1876-7, the progress of education was seriously impeded by the famine, the total diminution, as compared with the previous year's number, being 338 schools, and 2,637 scholars. The actual number of Government and aided schools rose from 844 containing 36,309 pupils at the end of 1875-6 to 921 schools containing 38,389 pupils at the end of 1876-7; but the severe distress caused a heavy decline in the number of the unaided institutions from 1,350 schools with 17,882 pupils, to 935 schools with 13,165 pupils. Adding together all classes of schools in Mysore, there were 1,856 schools giving instruction to 47,759 boys and 3,795 girls, or 51,554 children altogether, which was at the rate of 1 in 98 of the population. The educational income of the province from every description of schools was 22,274 *l.* STATE OF EDUCATION. Mysore.

A slight increase of 99 occurred in the number of pupils under instruction in Coorg during 1876-7, bringing the total to 2,798. Gradual improvement has been effected in the lower class of Government schools, and the working of the school committees was considered satisfactory. Coorg.

Though the total number of educational institutions in the Madras Presidency declined from 10,252 in 1875-6 to 10,139 at the close of 1876-7, yet the number of scholars on the rolls increased from 284,480 to 287,948. Much hindrance to the progress of education was caused by the severe famine and distress among the population, and the Government were deterred from extending the system of elementary education throughout the country by means of the legally constituted agency of Local Fund Boards, the revenues of those boards available for education having been partially diverted to sanitary and medical services. Attendance slightly fell off at the Presidency College from 165 to 154, but it rose in the provincial college of Combaconum from 165 to 200. Collegiate schools were in good order; a revised curriculum was issued for the Government higher class schools, and the establishment of a gymnasium open to all the Madras schools was under consideration. The general condition of middle-class schools was improving, except in the Kurnool district. At the Ootacamund Lawrence Asylum attention continued to be paid to industrial training, and a survey class was established. Revised rules for improving the character of the instruction imparted in certain of the lower class schools were passed after the close of the year. From all sources the gross sum expended on education during 1876-7 was 283,717 *l.* Madras.

The famine caused an unfortunate check in the progress of education in the Bombay Presidency. Statistics shew a decrease for 1876-7 of 14 schools and 1,271 pupils, the number of schools having fallen from 4,478 to 4,464, and that of pupils from 250,712 to 249,441. The number of Government schools decreased by 70, and of aided schools by 8, while inspected institutions and police and gaol schools increased by 52 and 12 respectively. The expenditure in 1876-7 was 304,092 *l.* against 299,888 *l.* in 1875-6. Deducting 69,092 *l.* for the expenditure from funds not under Government control, the amount expended by the Education Department was 235,000 *l.*, while the income was 115,487 *l.*, against 121,903 *l.* in 1875-6. Receipts from the education cess decreased from 71,833 *l.* to 60,760 *l.*, owing to the drought in the Deccan and Southern Márátha country. In the Elphinstone College the number of students on the rolls fell from 226 to 203; the results of the University examinations were generally satisfactory. Students on the rolls of the Deccan College decreased from 96 to 75, of whom 59 were in residence; great improvements were effected in the college buildings, and additional quarters were built for resident students. Attendance at the 2 aided colleges, viz., the St. Xavier's and the Free General Assembly's College, decreased by 33 pupils, the number being 81 against 114 in 1875-6. Of special colleges the Law School shewed a decline in the number of students on the rolls from 139 to 113. Grant Medical College has already been mentioned under the head of Medical Schools. Poona Civil Engineering College was an exception to the general decline of numbers in collegiate institutions, but the increase was only from 163 to 164; the demand for trained subordinate engineers for the famine relief works gave a stimulus of which the probable effect will be a marked increase of attendance in future years; the success of the students at the University examinations was also exceptional. Of technical schools, the number of students in the Sir Jámsetji Jijibhái's School of Art advanced from 122 to 132; at the annual examination the examiners commented unfavorably on the condition of the elementary drawing Bombay.

STATE OF EDUCATION.

school and on the slight progress in the pottery department, but in other respects their report was favorable. The various high schools sent up 1,154 candidates to the University matriculation examinations, as compared with 1,269 in the previous year. Owing to greater severity in the standard, only 203 passed, as against 434. Most of the successful candidates joined one or other of the affiliated colleges. The condition of the Elphinstone high school was very satisfactory, the number on the rolls having risen from 606 to 673, and the fee receipts from 2,173 *l.* to 2,500 *l.* At the close of 1875 there were 31 British schools and 33 native schools (besides 31 native girls' schools) under the Army Education Department. In the British army schools during 1876 the total number under instruction was 4,729. Of these, 2,504 were adults, 660 grown children, 733 infants, and 912 of the industrial classes. The average daily attendance of the children was very good, and that of the men was much better than in 1875. In the native army schools the number of pupils under instruction at the close of 1876 was 5,021, against 4,521 in 1875. 53 pupils were non-commissioned officers, 1,042 privates, 1,202 recruits, 696 enlisted boys, and 2,028 unenlisted boys.

UNIVERSITIES.

The Universities of Calcutta, Bombay, and Madras were incorporated in 1857 by Acts of the Government of India, Nos. II., XXII., and XXVII. All are based on the model of the University of London, but rigorous uniformity of detail is not enforced. A memorial was submitted by the senate of the Punjab University College, praying that on the occasion of the assumption of the Imperial title, the college might be raised to the status of a university, and empowered to grant degrees. This measure was approved by the Government of India, in a resolution of 1 January 1877, and legislation was subsequently taken to carry it into effect.

Bengal.

To the various examinations of the University of Calcutta 3,910 candidates were sent up during 1876-7. Of these, 2,035 passed, including 108 Christians, 1,757 Hindus, 87 Mahomedans, and 83 of other religious denominations. At the entrance examination 1,355 were successful out of 2,425 candidates.

Punjab.

During 1876-7 there were 245 candidates sent up to the examinations of the Punjab University College at Lahore, and 176 passed. Of the successful candidates 138 were Hindus, 26 Mahomedans, and 12 Sikhs. At the close of 1876 the endowment fund amounted to 35,349 *l.* The income during 1876 was 4,605 *l.*, and the expenditure 6,162 *l.*

Madras

At the Madras University the number of candidates who appeared in 1876-7 at the different examinations was 3,118, of whom 1,467 were successful, including 153 native Christians, 1,256 Hindus, 20 Mahomedans, and 38 Europeans. In the entrance or matriculation examination 1,250 passed out of 2,517 candidates; but the standard of this examination was unusually low. The net cost of the University was 1,153 *l.* against 1,268 *l.* in 1875-6. With the view of rendering the University more self-supporting, changes were made which will effect a saving of about 668 *l.* a year.

Bombay.

The total number of candidates who presented themselves at the various examinations of the Bombay University was 1,537, of which number only 336 passed. The matriculation standard which had been lowered in 1875-6 was again raised in 1876-7, and only 203 candidates were successful out of 1,154. The Bombay Government agree with the Secretary of State that a gradual elevation of the matriculation standard is desirable, but are satisfied that a fluctuating standard is a disturbing element in a state system of education. The Director of Public Instruction has therefore been ordered to inquire into the matter.

MAHOMEDAN EDUCATION.

Bengal.

While Mahomedan pupils were over 20 per cent. of the total number returned as attending all classes of schools in Bengal, during 1875-6, they were only 18 per cent. in 1876-7. This decrease was caused by the reduction of the number of primary schools in the divisions where there is a large Mahomedan population, over 80 per cent. of Mahomedan pupils being in schools of the lowest class. Government schools of all classes uniformly attract Mahomedans to a greater degree than aided schools; but the number of Mahomedans that attend schools of technical instruction is remarkably small. The percentage of Mahomedans is 31·5 of the total population in Bengal.

Assam.

Different opinions have been expressed with regard to the progress of Mahomedan education in Assam. Undoubtedly there was a falling off during 1876-7 in the number of Mahomedan children at the various schools of the

province, as compared with the number during the previous year; but this was in a great measure due to a growing dislike on the part of the Musalman population to the purely secular Hindu course of study prescribed. Many Musalman guardians preferred taking their children away from the Government schools and sending them to independent schools where religious instruction in Persian and Arabic could be imparted. It is quite a question whether the Mahomedans are not at least as energetic as the Hindus in the pursuit of education. Several independent schools were opened by the Mahomedans during the year in opposition to the aided schools, and a wholesome spirit of rivalry is said to exist. The most unsatisfactory point is that, in a district like Sylhet, where Musalmans form half the population, the state aid to education is practically conferred only on the Hindu moiety. MAHOMEDAN EDUCATION.

Mahomedans in the North Western Provinces, during 1876-7, shewed a decreasing prejudice to the State system of education. Of the 5 candidates who passed the M.A. degree examinations, 3 were Mahomedans. It has been found that the private and indigenous schools suit, more than Government schools do, the line of culture favored by the non-religious system, and that private home teaching is frequently resorted to in Mahomedan families where means are available. The percentage of Mahomedans attending all classes of schools is slightly in excess of the percentage of the Mahomedan population. N. W. Provinces.

In Oude during 1876-7 Mahomedans comprised 16,434 of the total number of scholars on the rolls of the various institutions under Government inspection. In 1875-6 their number was 15,639. Oudh.

A slight increase occurred during 1876-7 in the number of Mahomedan children under tuition in the Government and aided schools of the Punjab. Musalman scholars on the rolls at the close of 1875-6 numbered 43,533; at the close of 1876-7 they numbered 43,013. Punjab.

Out of a total of 83,441 pupils in the schools of the Central Provinces on 31 March 1877 there were only 5,844 Mahomedans. Central Provinces.

Owing to the absence of any Mahomedan teachers in the schools of the Ajmere and Mhairwarra districts, very few boys of that class attend the schools. In 1876-7 the number was 68. Ajmere.

In Berar there were 3,602 Mahomedans included among the 26,349 scholars on the rolls of the various schools on 31 March 1877. Berar.

At the close of 1876-7 the Mahomedan pupils in the schools of Mysore numbered 3,797 out of a total of 51,554. Mysore.

Only 108 Mahomedans attended the various schools of Coorg during 1876-7. Coorg.

Great difficulty was found regarding the Government examination of Mahomedan schools in the Madras Presidency, and towards the close of 1877 a Mahomedan was appointed Special Deputy Inspector to travel over the whole Presidency, and to report on all such schools under inspection. At the University the number of Mahomedans that passed the matriculation rose from 6 in 1875-6 to 19 in 1876-7. There were altogether 20,653 Mahomedan pupils out of the total 287,948 scholars on the rolls of the different educational institutions, as compared with 21,806, out of a total of 284,480 at the close of the previous year. These figures shew a considerable decrease in the number of Mahomedans under instruction. Madras.

The increase of Mahomedans under instruction was maintained in the Bombay Presidency. In Government schools there were 23,197, against 20,077 in 1875-6, and 13,613 in 1869-70. In all schools connected with the Education Department the number rose from 26,297 to 27,263. A Mahomedan from the Elphinstone College, the first Mahomedan who has obtained the distinction, was placed in the 1st class in the B.A. examination. Bombay.

The number of native girls under instruction in Bengal rose from 16,876 in 1875-6 to 20,286 in 1876-7. This large increase was almost exclusively due to the application of the primary grant to the spread of female education. Of the total number of girls, 7,186 in 1875-6, and 9,794 in 1876-7, were being educated at the ordinary boys' schools, where the teaching and discipline are better than in the regular girls' schools, and where there is often a healthy rivalry between the sexes. FEMALE EDUCATION. Bengal.

A marked and encouraging increase from 906 to 1,008 occurred in the number of female pupils attending the schools in Assam during 1876-7. The majority of these female pupils attended girls' schools proper, but a very large Assam.

FEMALE EDUCATION.

number read in the ordinary village schools. It seemed also probable that many other girls were getting instruction at their homes. Girls' schools were for the first time opened in Lakhimpur, the most backward district in the province. Regular and systematic teaching of girls went on in the Khási Hills, where the credit is entirely due to the missionaries and their wives, the percentage of female scholars in the schools rising from 21 in 1875–6 to 24 in 1876–7.

N. W. Provinces. Large reductions were made in girls' schools in the North Western Provinces, the number of schools falling from 392 in 1875–6 to 178 in 1876–7, and of scholars from 8,935 to 4,432. Thus 214 schools, with a nominal roll of 4,503 scholars, were abolished. The results of female education had been painfully disappointing, and the financial condition of Government rendered economy essential. A female student, from an aided Christian school at Dehra, matriculated in 1876–7; this was the first instance of the kind on record in these provinces.

Oudh. In Oudh the number of Government schools for girls was 75, and the number of pupils on the rolls at the end of 1876–7 was 1,792. These figures shew a decrease of 1 school and 119 scholars. American and Church Missions owned 14 aided primary schools, with 393 pupils. Hindu women under instruction from the Zenana Agency fell in number from 99 to 88, while the number of Mahomedan women rose from 149 to 156.

Punjab. The number of Government female schools in the Punjab increased from 130 to 134, and of aided female schools from 213 to 223; but there was a decrease of pupils in both cases, from 3,374 to 3,269, and from 6,644 to 6,576, respectively. The decline is attributable to the prevalence of fever throughout the province.

Central Provinces. Female education in the Central Provinces has to contend with great difficulties, and shews little vitality. An endeavour is being made to obtain teachers by inducing the wives of normal school students to qualify.

British Burma. Female education is capable of very wide extension in British Burma. Desire for it already exists among the people. There were 22 girls' schools under State control during 1876–7, one supported entirely by Government, and the remainder aided. The attendance of pupils increased from 3,528 to 4,328.

Ajmere. Only 267 native girls were under tuition in Ajmere during 1876–7. Towards the end of the year an attempt was made to start 5 female village schools.

Berar. In the Hyderabad Assigned Districts 6 female schools were closed during the year, and the closure of others is under consideration. Of only two is the report of progress satisfactory.

Mysore. Favorable progress was recorded of the Government female schools in Mysore during 1876–7, the numbers rising from 8 to 10 with 346 pupils. There were also 34 aided schools with 2,823 pupils. But for the unfortunate condition of the country, arising from the famine, female education might have been considerably extended.

Coorg. In the Government and aided schools of Coorg during 1876–7 there were 191 girls under instruction, of whom 150 were Coorgs. An attempt to establish a girls' school at Mercara failed, from a want of heartiness displayed by the Coorg headmen. Famine and cholera have since, it is feared, dispelled the very idea for a time.

Madras. A great increase occurred in the Madras Presidency during 1876–7 in the number of girls' schools, which rose from 2,329, with 23,793 pupils, to 2,815, with 28,151 pupils, exclusive of the female scholars of certain large schools in Madras supported by the Máhárája of Vizianagram. Mahomedans increased from 908 to 978. Government have recognised the principle of employing female teachers as far as possible, and as opportunities occur young women trained in the Madras normal school will be sent to take the place of masters. A question was raised as to the propriety of admitting children of the dancing-girl class into schools supported by the State, and Government decided that no children of this class under the age of puberty were to be excluded.

Bombay. Some progress was made in the Bombay Presidency with female education in 1876–7. Girls' schools shewed a decrease of 3 government schools, but an increase of 58 pupils, an increase of 1 aided school and of 425 pupils, and an increase of 5 inspected schools and of 28 pupils. Education received a check

in Sind by the prevalence of small-pox and fever. At the Poona training school the number of pupils rose from 19 to 27; the result of the examination by the inspector was considered very satisfactory; more time was devoted during the year to needlework than formerly; the pupils are thoroughly grounded, so as to be able to teach in their own language; although English does not find a place on the time table, yet some of the girls study it at home. The Ahmedábád training college was practically useful during 1876-7, having sent out 5 teachers to various schools. At the examination of the female normal school at Haidarábád, 8 out of the 9 candidates did well. Female education under the direction of the Army Education Department continued to spread, the return shewing 24 schools and 715 pupils, as compared with 21 schools and 622 pupils in 1875. FEMALE EDUCATION.

With the exception of British Burma and Assam, each Province of India is endowed with one or more museums. The number of libraries and scientific societies is annually increasing. SCIENCE AND ART.

Considerable progress was made during 1876-7 in perfecting the arrangements of the Economic Museum, which was established at Calcutta on 7 April 1874. Local committees had been formed at the close of the preceding year in all the districts of Bengal, except Manbhoom and Cooch Behar. A marked improvement took place in the working of these committees, and contributions were received from 40 of them during the year. Altogether 4,211 specimens were added to the museum, the total number on the register on 31 March 1877 being 9,514. It is an important portion of the work intended to be accomplished by this museum, that there should be, as part of a regular organisation, three or four of the most intelligent residents of every district whose attention is constantly and regularly directed to the economic products of their district. Arrangements were not yet complete at the Imperial Indian Museum. Bengal.

Museums are still kept up at Lucknow and Fyzabad, in Oudh, and continue to be popular with the people, who visit them in large numbers. Oudh.

The Lahore Central Museum in the Punjab has increased greatly in popularity. The number of visitors rose from 90,006 in 1875-6 to 129,892 in 1876-7. Punjab.

The museum at Nagpur in the Central Provinces, under the charge of the Inspector General of Education, is a useful educational institution, and was visited by 70,593 persons during 1876-7. Central Provinces.

During 1876-7 there were 120,973 visitors to the Mysore Government Museum, which continues to be a favorite resort for natives. New specimens to the number of 571, consisting principally of birds, coins, and minerals, were added to the collection. The annual expenditure, including the charge for establishment, amounted to 245 *l*. Mysore.

Increasing interest is taken by the public in the Government Central Museum at Madras, the number of visitors during 1876-7 having been 206,877, a total largely in excess of the attendance in any recent year except 1875-6, when the admissions were abnormally high owing to the crowds who were attracted to Madras by the visit of the Prince of Wales. Many additions were made to the collections, and a brisk exchange of specimens was established with naturalists and museums in various parts of the world. Popular lectures on scientific subjects were delivered in the new museum theatre, and were well attended. The new reading room and library were much appreciated; its volumes numbered 8,863. Madras.

At the Victoria and Albert Museum in Bombay, the work of arranging and labelling the horns, skulls, hides, and stuffed specimens of mammalians was completed during 1876-7. Further experiments in the cultivation of jute were carried out in the gardens with better success than in the previous year. The average daily attendance of visitors to the Museum was 725. The library of the Sassoon Mechanics' Institute contained at the close of the year 7,518 volumes, including 2,669 bound volumes of specifications of patents. Scientific lectures were delivered in the institute during the session. Bombay.

Act XXV. of 1867 was passed to provide for the regulation of printing-presses and newspapers, for the preservation of copies of every book, pamphlet, sheet of music, map, chart or plan, separately printed or lithographed in British India, and for the registration of such works. Registration of copy- LITERATURE AND THE PRESS.

LITERATURE AND THE PRESS.

right is optional, and provided for by an older Act (XX. of 1847), on payment of two rupees for each work. Of 4,865 works (other than newspapers) registered during 1876 in British India, 565 were written in English or European languages, 3,325 in the vernacular languages of the various provinces, 563 in the Indian classical languages, and 412 in more than one language. Republications embraced 2,087 of the whole number; the remainder included 223 translations, and 2,555 original works. Educational works numbered 1,180, and non-educational 3,685. A large proportion of the works were religious and devotional, their number being 1,216. Poetry came second with 801, fiction took 191, and the drama 131. Under language 518 works were classed, relating to grammars, dictionaries, vocabularies, and the like. Law was the subject of 194, medicine of 149, mathematical and mechanical science of 147, natural and other sciences of 133; while 81 were devoted to history, 64 to philosophy, 30 to biography, 11 to travels and voyages, and only 4 to politics. The remaining 1,195 works were classed as miscellaneous. For the different Provinces the numbers in 1875 and 1876 were respectively: Bengal, 1,529 and 1,512; Assam, 9 and 38; North-Western Provinces, 358 and 387; Oudh, 190 and 243; Punjab, 1,025 and 892; Central Provinces, 2 and 1; British Burma, 50 and 69; Ajmere, none in either year; Berar, none and 1; Mysore, 38 and 68; Coorg, none in either year; Madras, 748 and 823; Bombay, 735 and 831.

With regard to newspapers, the existing rules for their registration came into operation on 1 October 1871, and the numbers of papers at the close of each year since then have steadily increased from 430 in 1871-2 to 644 in 1876-7, the latter number including 213 papers in English or European languages, 350 in vernacular or Oriental languages, and 81 in more than one language. Though called newspapers, many of them are nothing but trade circulars and broadsheets. Of the 644 newspapers on the registration lists at the end of 1876-7 no less than 142 had come into existence during the year, taking the place of 131 papers, the publication of which had been discontinued; but these facts almost entirely concern the vernacular newspapers proper and shew their ephemeral character. In the course of an exhaustive and interesting lecture on the native press of India delivered at a meeting of the Society of Arts in March 1877, Dr. George Birdwood, C.S.I., gave the following estimate of the numbers of the vernacular papers:—"There are 11 Anglo-Mahratta and 27 Mahratta journals in the Bombay Province, three Anglo-Guzerati, and 23 Guzerati; one Hindustani, and one Persian; altogether 66 native newspapers. In Bengal there are about 30, nearly all in Bengali; in Madras, about 25, half Tamil and Telegu and half Hindustani; and in the North-Western Provinces, Oudh, and Central Provinces, &c., about 80, nearly all in Hindustani; about 200 native newspapers for all India."

There are four reporters on the vernacular press, for Bengal, Upper India, Madras, and Bombay respectively.

Bengal.

The "Bengalee" and the "Ooriyah Gazette" are regarded as the official organs of publication for Bengal Proper and Orissa respectively. In 1876 it was determined to start a new paper in the Hindi language, under the title of the "Behar Gazette," to supply Government information to the people of Behar. The paper is published fortnightly at Bankipore.

Most of the native Bengali papers circulate 250, 350, and 500 each; the *Soma Prakash*, 700; the *Amrita Bazaar Patrika*, 2,217; and the *Salobha Samarchar*, so it is said, 3,000. The number of vernacular newspapers supplied to the Bengal Library during 1876, exclusive of 23 which ceased to exist, was 35, against 53 received in 1875. Of the whole number, 4 were daily, 26 weekly, 1 half-monthly, and 4 monthly. The large reduction in the number of vernacular newspapers is said to be directly traceable to the spread of English education, which is continually increasing the demand for cheap English papers, and reducing the number of subscribers to vernacular newspapers.

Upper India.

There were 97 papers during 1876 on the list of the reporter on the vernacular press of Upper India, 41 belonging to the North-Western Provinces, 34 to the Panjáb, 15 to Oudh, 4 to Central India, and 3 to Rajputana. Of the newspapers published in the North-Western Provinces, 28 appeared weekly, 1 thrice a month, 8 twice a month, and 4 monthly. Nearly every principal town has its local Hindustani paper. The most respectable and best informed papers are the *Agra Akhbar*, with a circulation of 377 copies;

the *Aligarh Institute Gazette*, with one of 343; and the *Lawrence Gazette* (Meerut), with one of 500. What has just been stated generally of Indian journalism applies most especially to papers published in Upper India, where we find the smaller fry of the native press. Most vernacular newspapers have a very struggling and ephemeral existence. Some papers have two or three rates of subscription; the highest being charged to rájas, independent chiefs, and wealthy men; the second to poorer subscribers; while the lowest price is reserved for those who cannot or will not pay the higher rates. Scarcely one paper can pay its contributors. Few proprietors return the circulation of their papers at above 200 copies. The *Oudh Akhbar*, one of the best papers in Northern India, has only 650 subscribers. Very few newspapers have any advertisements, or do any business whatever in what is usually considered the most profitable branch of journalism. Therefore the vernacular press is hard beset with poverty, or at least small means. Such a thing as a regular staff or a policy is unknown. The support formerly given by Government has been withdrawn since 1876 on financial grounds, and it may be doubted whether any paper, as at present conducted, deserves to be subsidised by the State. Compared with its conditions in 1848, the progress of the vernacular press has been considerable. In that year there were 28 newspapers in circulation in Northern India, of which 7 belonged to Agra, 8 to Delhi, and 6 to Benares. Many had a merely nominal circulation, and only 4 boasted of over 100 subscribers. The average circulation was under 60 copies, and the annual receipts of proprietors amounted to 1,358 *l.* The *Oudh Akhbar* (Lucknow), and the *Akhbar-i-Am* (Lahore), together have now a larger circulation than had all the journals existing in 1848, and the matter they contain is greater. LITERATURE AND THE PRESS.

In British Burma 13 newspapers were published during 1876-7, of which two were issued daily, one thrice, three twice, and six once a week, and one monthly, the last being a regimental paper issued by the 67th regiment, stationed at Thayetmyo. There were also various advertising sheets; and four monthly magazines were published by the Baptist Mission and other religious bodies in English, Burmese, and Karen. British Burma.

A monthly Marathi publication, entitled the *Berar School Paper*, supported by an annual grant of 36 *l.*, was issued for the first time in 1876-7, and is said to have aroused a wholesome spirit of educational emulation among the village communities. Berar.

In Bombay the Gujaráti *Rast Goftar*, established in 1851, and afterwards amalgamated with the *Sankya Prakash*, and the Marathi *Subodka Patrika*, have the largest circulation of all the vernacular newspapers in the Bombay Presidency, amounting to about 1,600 copies each; the Gujarati *Daftardun* has a circulation of about 1,000; the rest run from 50 to 500 each. The reporters' list for 1876 gives 65 newspapers instead of 61 in the previous year. The Imperial assemblage at Delhi was the political subject most prominently treated by the native press. Lord Lytton's urbanity of manner to the princes and chiefs gave general satisfaction, as also did the hospitable reception of the representatives of the native press. The famine in the Deccan excited much attention, and the measures of the Bombay government were generally praised. Sir R. Temple's advent as famine delegate was hailed with delight, as it was hoped he would increase the relief wages; but the reduction that he caused in the rates caused loud complaints, and the deaths from cholera and other epidemics were attributed by the press to slow starvation. Lord Northbrook's later acts did not meet with the approval of the native press, and his departure received considerable notice, but excited no regret. Lord Lytton's proceedings in the Fuller case met with hearty and unanimous approval. Among legislative measures, the Bombay Revenue Jurisdiction Act, the Presidency Magistrates Bill, and the Cotton Frauds Act were condemned. The Compulsory Vaccination Act gave general satisfaction. The Duke of Buckingham's decision in the Weld case was much praised. Complaints were frequent against municipal corporations, and with regard to the treatment of third-class passengers by railway. The civil war in Turkey evoked constant expressions of sympathy with that country and of distrust of Russia. Bombay.

XIII.

NATIVE STATES.

On the occasion of the assumption of the Imperial title, the chiefs of Gwalior, Indore, Kashmir, Travancore, Bundi, Jeypore, Rámpur, and Jhind were nominated Counsellors of the Empress, while the chiefs of Bhurtpore and Bundi were placed in the first class, and those of Kolhapur, Dhar, Drangdra, and Nauanagar in the second class of the order of the Star of India. Máhárája Sindia of Gwalior and the Máhárája of Kashmir were also created generals in Her Majesty's army. To Máhárája Holkar of Indore a territory of 360 miles in Khandesh has since been transferred. Numerous other chiefs received marks of distinction.

States under the Government of India.

BERAR and MYSORE. Berar and Mysore, being under British administration, have been fully treated in the previous chapters of this Statement.

HYDERABAD. No account has been received of the administration of the important State of Hyderabad.

BARODA. Baroda, the latest Administration Report of which went to the end of July 1877, embracing a period of 16 months, continued under the able administration of Sir T. Madava Ráo, K.C.S.I.; Mr. P. S. Melvill, C.S.I., being the Governor General's agent. The assumption of the Imperial dignity was, as in other States, the event of the year; the Gaekwar, his mother, and his ministers were present at the Delhi assemblage. Sir Madava Ráo reports the foreign relations of the State as satisfactory; and arrangements have now been made for the settlement of the many long pending boundary disputes and of the important question of claims to *giras* rights. A new special court for Sirdars was instituted in the city of Baroda in the place of the old one presided over by a Bakhshi, and the new one at present seems to promise well. The new British system of judicial administration came into full working order, and the cost of the establishments was almost covered by the income from stamps, &c.; 12,539 civil suits were filed during the year. Although crime did not increase, criminal justice exhibited two unsatisfactory features, viz., the long duration of suits, and the number of cases struck off the files in consequence of the non-attendance of prosecutors. Taken altogether, however, the results of civil and criminal justice were eminently creditable to the administration. The new police worked satisfactorily during the year, except in the Northern Division, where there is little security for life or property. Three mail robberies occurred in Baroda territory, the culprits in each case being pursued and tracked with praiseworthy persistency by the local police. The regular troops of the State were reorganised, and it was expected that the minister would shortly be able to cope with the great question of revision of the irregular forces. Much attention was paid to the conservancy and improvement of the city of Baroda and its environs, and conservancy in minor towns was not neglected. A scheme for supplying the city with water was under consideration. Traffic on the Gaekwar's 2 ft. 6 in. railway shewed steady increase; all expenses incurred since the opening of the line have been paid from income. Baroda has an excellent high school in which English and the vernaculars are taught, and there were rather more than a hundred vernacular schools in the Gaekwar's territory under State supervision. With the primary object of training doctors, engineers, and lawyers for the Baroda State, an institution called the Vernacular College of Science was set on foot during the year, and attracted a fair number of pupils. The organisation of a State Medical Department was begun. Thirteen civil, one jail, and six military hospitals and dispensaries were at work in various parts of the territory. In addition, there was an efficient establishment for vaccination, which operated on 56,472 persons. Land revenue brought in 890,162 *l.* Harvests were good. A large reform was made in the customs system; hundreds of inland posts were abolished, and a series of frontier posts established; the import tariff was simplified and reduced, and the duties on exports were retained on only about seven articles. An examination was made of the extensive and valuable, but

hitherto neglected, forests in the Nausari division, and a report upon them submitted. The total income of the State was 1,274,880 *l.* and the expenditure 1,042,438 *l.* The young Gaekwar attained the age of 14 in March 1877.

RAJPUTANA AGENCY.

In Rajputana the Imperial assemblage at Delhi, with its accompanying display of the power of the British empire, appears to have produced a powerful impression on the minds of the Rajput chiefs, and to have elicited everywhere proofs of their loyalty and goodwill towards the Government. The general material condition of the Agency is reported to have been satisfactory: the crops, save in three or four States, having been above the average, and the health of the people fairly good. Crime decreased, and the average number of prisoners in the jails was less than in the previous year. The International Court of Vakeels, in spite of certain defects in its working, and its failure as a punitive agency, is considered to be of use for the prevention of crime. It has been determined to continue the border panchâiats, with certain modifications in their constitution and procedure, and rules have been drawn up to give effect thereto. Arrangements have also been made with Gujarát and Central India for the extradition of heinous offenders. The criminal tribes remained quiet during the year, bu it is feared that in some of the wilder States they are still harboured and encouraged by the chiefs, who are often in league with them, and share their plunder. The results of the operations of the Thuggee and Dacoity departments were very satisfactory. Progress was made in the settlement of boundary disputes, considerable stretches of boundary having been demarcated. The number of dispensaries remained stationary, three new ones having been opened, and three closed; an increase of 4 per cent. occurred in the number of cases treated. With regard to vaccination, 80,611 successful operations were performed, an increase of 15 per cent. on 1875-6. Outbreaks of cholera occurred in Bhurtpore and Dúngarpur: and smallpox was prevalent in Jeypore, Kishengurh, and Bánswára, and in Oodeypore city. The death rates in the jails were still very high, being double those of British jails. Major St. John reports favorably on the progress of the young native chiefs and boys of high rank who form the students of the Mayo College, and numbered 31 at the end of the year; six of the college boarding houses were completed, but the main building was not even begun; the finances of the institution were not in a very encouraging state. The Thakoors' schools at Ulwur and Jodhpore shew progress. Indeed, the state of male education in the Rajputana States is very satisfactory. The same, however, cannot be said of female education, which is in a very languishing condition.

Ulwur. The Chief of Ulwur is very favorably mentioned, and the state continues to flourish.

Kotah. Nawab Sir Faiz Ali Khan, the Administrator of Kotah, resigned office on 1 September 1876 into the hands of Captain Abbott; a fourth of the state debt was paid off, and progress made in the settlement survey.

Dholpur. The area of Dholpur was proved by the land revenue settlement to be 1,055 square miles. A portion of the Government loan was paid off during the year.

Jhallawar. Kunwar Bakht Sing, whose accession was sanctioned by Government on the failure of issue to the late Máhárája of Jhallawar, was installed on 22 June 1876. The state is prosperous

Oodeypore. The Máhárána of Oodeypore, who was invested with powers of government on 18 September 1876, is a young chief of much promise. A fresh attempt has been made to introduce land assessments. The Bheels are beginning to leave their jungles, and settle down as cultivators.

Bánswára. Bánswára compares unfavorably with the preceding states. The chief, who is at feud with his tributaries, has little power, and the officials are inefficient. Military operations were undertaken against the Bheels, who had become very troublesome.

Partábgarh. Partábgarh has made great progress, and is gradually clearing off its debts.

Jeypore. The Máhárája of Jeypore has shewn much energy in the prosecution of public works. Jeypore city, which is one of the finest in India, now boasts a supply of good drinking water; a new metalled road has been opened from Mandawar, on the Rajputana State Railway, to Kerowlee, and the Albert Memorial Hall was about to be begun. Mayo Hospital has proved a great benefit. In localities distant from the capital and away from the influence of

the durbar, violent crime is said to be still rife. The Máhárája was about to take up the important question of the land settlement, which greatly needed revision, the terms proposed having been unsuited to the people, and actually rejected by some of the cultivators. Attendance at the Máhárája's college and the Zillah schools fell off somewhat, but this is explained by the establishment of mission schools in various parts of the capital.

Kishengurh. In Kishengurh the only notable events of the year were the marriages of two of the Máhárája's daughters, to the Máhárána of Oodeypore and the Máhárão Rája of Ulwur, respectively. The ceremonies, as usual, entailed heavy expense on the state.

Jodhpore. In Jodhpore some minor Thakoors went into outlawry, but on a force being sent against them, the matter was compromised.

Kerowlee. Kerowlee is poor, but its people are orderly and contented. The balance of the state debt has been remitted, and the Chief, who was much gratified by the present of 3 field guns from the Viceroy, is endeavouring to reduce his debts.

Bickaneer. Bídásar, a feudatory of Bickaneer, was in a disturbed condition during the year, and a serious outbreak occurred in the state prison. The finances of Bickaneer are credited with a surplus of 20,000 *l.* The Máhárája did not attend the Delhi assemblage, as he was away in Kutch celebrating his nuptials with the sister of the Ráo of that state.

Central India Agency. Though the prosperity of the country under the Central India Agency was, to some extent, affected by the drought which prevailed in certain districts, the results of the year's administration were fairly satisfactory.

Indore. In Indore, a system of trial by jury was instituted, and a code of rules drawn up for the guidance of jurors. The plan worked well, a large number of cases, both civil and criminal, having been disposed of. The revenue of the state increased from 459,800 *l.* to 492,300 *l.*, and the expenditure 420,400 *l.* was well within the limits of the income. Collections of land revenue fell short of the demand by about 10 per cent. Not much was done in public works, but the new gaol was completed, and a dispensary built at Indore at a cost of 1,000 *l.* Vaccination received fair attention. Considerable improvements in sanitation, drainage, and roads, were effected by the lately established municipality of Indore. The cotton-mill continued remunerative, shewing a profit of 10,600 *l.* for the year.

Gwalior. In Gwalior the harvests were abundant, and grain plentiful and cheap. The general health was good, though cholera, in an epidemic form, visited some of the outlying districts. No mail or bullock-train robberies were reported, but 19 cases of robbery came under notice. Extradition of criminals was better carried out than formerly. A son and heir apparent was born to Sindia on 21 October 1876.

States under the Government of Bengal.

Cooch Behar. Cooch Behar is a flourishing State, with a population estimated at 532,565 souls. Its income during 1876-7 exceeded the expenditure, leaving a surplus of over 35,000 *l.* The receipts increased under almost every head of revenue. Public health was on the whole good, and the condition of the people prosperous and progressive. Among other public works, improvements were effected in the town of Cooch Behar by the excavation of large tanks and the filling up of noxious cesspools. In no department of the State was progress more marked than in that of education. A few years ago there was scarcely a school in the Ráj. In 1876-7 Cooch Behar was ahead of Rungpore and Jalpáiguri and of all the Assam districts, and could favorably compare with some of the more advanced districts of Bengal. The number of schools increased from 282 to 323, the number of pupils from 7,238 to 7,795, and the average daily attendance from 6,087 to 7,151. The exports of Cooch Behar were tobacco, jute, mustard seed, and mustard oil, and the imports were salt, pulses, brass utensils, clothes, and European piece goods.

Chittagong Hill Tracts. In the Chittagong hill tracts during 1876-7 there was a continuance of distress, more or less generally felt among the people. The cyclone of 1 November 1876 did greater damage than the floods of 1875; one-fourth of the standing crop was destroyed. Public health was generally bad. Food was dearer than in 1875-6. About 500 families emigrated to Hill Tipperah, mainly through a desire to avoid their liabilities to the Moung Rája. There was some immigration of Bengalis from the plains. No raid was made on British territory

during 1876-7, and no fighting occurred among the tribes immediately across the frontier. At a durbar held at Demagiri in January 1877, the opportunity was taken of proclaiming the boundary line of British territory, and of informing the chiefs that Government would afford full protection to all traders within the boundary, and would punish all persons guilty of offences of violence within the same limits. This proclamation has given a great stimulus to trade. The Chuckma Chief and the Moung Rája were reported to have behaved well, and to have exerted themselves creditably to relieve the distress of their people.

Hill Tipperah.

In Hill Tipperah the principal event of 1876-7 was the dismissal of the Dewan of the State, who had been guilty of extortion and other malpractices. The Rája continued his efforts to reduce his personal expenditure, so as to provide a margin for administrative improvement. Marriage ceremonies of his children made a heavy call upon his purse, but a single ceremony served for the marriage of eight of them. The administration of justice gave general satisfaction. The progress of education was very slight.

Cuttack Mehals.

The report for 1876-7 regarding the tributary mehals of Orissa was a record of continued progress and good management in the majority of estates. The fiscal condition of the three estates of Ungool, Banki, and Bamunghatty was very satisfactory. There is no land assessment in the Khond Mals, but the people have taxed themselves with two cesses; one on spirit shops, the proceeds being applied to maintaining schools; the other on ploughs, the collections going towards the construction of roads. Taking the 16 schools altogether, the average attendance for each was 36. There was little serious crime. With rare exceptions the conduct of the chiefs was good.

Chota Nagpúr Mehals.

Tribute was paid in full by each of the tributary States on the south-western frontier, and the conduct of the Rájas was good on the whole. Public health was generally good. Education was in a very elementary stage. The income of Sirgoojah rose from 2,987 *l.* to 3,276 *l.* Litigation of all descriptions was rife in Gangpore.

States under the Government of the North-Western Provinces.

Rámpur.

Rámpur has an area, by Government survey, of 945 square miles, and a population, according to the census of 1872, of 507,004 souls, of whom 283,344 were Hindus, 223,658 were Mahomedans, and 2 Christians. Its capital, Rámpur, is celebrated for its *khes*, a kind of damask, and for its pottery, the coloring and glazing of which is unusually good. The revenue of the State was 153,613 *l.* in 1875-6, and 154,827 in 1876-7, and the expenditure 141,148 *l.* in the former, and 140,713 *l.* in the latter year. The Rámpur military force in 1876-7 numbered 314 artillery, with 28 cannon, 520 cavalry, 947 infantry, and 1,076 foot police, while the cost was 26,898 *l.* Most of the cavalry are well mounted, well armed, and well clothed. Considerable attention is paid by the State to public works, justice, conservancy, education, medical relief, and vaccination, and the Nawab continues to merit approbation by judicious and enlighted administration.

Garhwál or Tehri.

Garhwál or Tehri has an area of 4,180 square miles, with a population estimated at 150,000; but no account of its progress in 1876-7 is given in the North-Western Provinces Administration Report.

States under the Government of the Punjab.

Kashmir.

It is a matter of great regret that no report has been received for some years of the administration of the territories of the Máhárája of Jammú and Kashmir. They extend over an area of 79,784 square miles, and contain a population of 1,534,972 souls. Various honours, as already mentioned, were conferred on the Máhárája on the occasion of the assumption of the Imperial title. Certain road works undertaken by the Punjab Government at the expense of his Highness have been described in the chapter on Public Works. A severe epidemic of cholera visited the valley of Srinagar in the summer of 1876.

Báháwalpur.

Báháwalpur has an area of about 15,000 square miles, a population of about 500,000 souls, and an annual revenue of about 240,000 *l.* During the Nawab's minority the State continues under the management of the Punjab Government. Extensive floods occurred in 1876, but not so disastrous as those of 1875. The *rabi* harvest was magnificent. No murders were committed in 1876, owing to

Báhálwulpur. the deterrent effect of severe punishments inflicted in 1875, when 12 murders occurred, and to the introduction of the frontier regulation for the trial of cases of adultery. There has been a slight but steady decrease during four years under each class of offences, more particularly in those against property. A change was introduced in the administration of civil justice, transferring to the courts of the munsifs the jurisdiction previously exercised by local committees, the employment of honorary courts being no longer necessary now that the judicial courts are firmly established. The principal public works of the year were the completion of the Barnswah Canal, and of the embankment designed to exclude the Sutlej and Chenab floods from the interior of the State. With regard to forests, the restrictive measures of conservancy are more lax in Báháwalpur than in the Punjab, and the annual consumption of wood during four years has been about five times as great as the production, so that if felling in the reserves were abolished for 15 or 20 years, there would then be only as much wood in the State as there was 40 years ago. The horse farm is not only self-supporting, but returns a profit to the State, after deducting all the expenses of the stud; most successful results were given in the cultivation of crops, the superintendent of the horse farm being one of the best practical farmers in India. It has been found that the desert lands belonging to the farm are exceptionally fertile when they have become accustomed to water and the reh has been got rid of; for two years they are quagmires, and then the soil becomes more consolidated and able to support a crop, but the salt efflorescence has to be removed bodily. There were 12 stallions, 97 mares, and 127 foals in the farm. One of the stallions, an Arab, was presented to the Nawab by the Viceroy at the close of the Delhi Imperial Assemblage. Besides a normal school and several mission schools, there were 54 village schools in the state, with 1,923 pupils, and considerable improvement was reported to have been made. The plan of sending the Nawab to England to complete his education was abandoned some time ago; he has made real progress with his studies, and is described as a high-spirited engaging boy.

Patiála. A Council of Regency, to conduct the affairs of the Patiála State during the minority of the young Prince, was formed on 14 August 1876, and the members have satisfactorily discharged their difficult and invidious duties. On 7 January 1877 Lord Lytton visited Patiála and installed the Máhárája.

States under the Government of the Central Provinces.

Relations with the 15 feudatory States under the Government of the Central Provinces continued harmonious during the year. Their total area is 84,000 square miles, containing a population of 1,050,000 souls.

Bastar. The previous year's outbreak in Bastar, the cost of which, amounting to 11,787 rupees, fell entirely on the chief, impressed him with the necessity of looking after his own affairs. Several measures of reform were introduced, and the Mooreeas, who headed the outbreak, appear now happy and contented.

Kalahandi. Sonpur. Very few of the other States are described as well managed by chiefs of character and intelligence, the two best being Kalahandi, with an area of 3,745 square miles, and Sonpur, of which the area is 906 square miles, the population in each case being about 130,000.

Patna. Patna, Khairagarh, and Sakti, still continued under direct Government management, interference having been necessary in each case from the same cause which culminated in the Bastar outbreak, the leaving of the whole work of administration to unscrupulous agents.

Patna covers an area of 2,399 square miles, with a population of nearly 100,000. The country has been controlled by Government officers since 1871, and the estate is in a very flourishing condition, as described in the last Progress Statement.

Khairagarh. Khairagarh, also, illustrates how speedily prosperity is restored to an estate when properly administered. A few years ago the country was harassed with exactions, complaints were constant, and the Chief was crushed with debt. All debts have now been paid off, and there was a surplus to the credit of the State of over 7,000 *l.*

Sakti. Sakti was taken under direct management in 1875, and the debts have already been paid off, though not much else was done during 1876-7. The summary settlement for five years was still uncompleted.

States under the Government of Madras.

Travancore. In Travancore the administration of public affairs, and the commercial and educational progress of the people, continued satisfactory during the Malayalum year ending 15 August 1876. An enactment was passed prohibiting public lotteries. Royal Proclamations having the force of law were also issued, constituting a court for hearing appeals against the decisions of special magistrates for the trial of European British subjects; defining the jurisdiction of ordinary courts in cases of contempt committed by the same class; and enunciating the policy of the State in regard to the schism in the Syrian Church. The administration of criminal and civil justice was on the whole satisfactory. Crime was slightly on the increase. Mortality in the jails continued to rise, owing to the prevalence of cholera, and reached 6½ per cent. Registration shewed a satisfactory advance, both in the value of property involved, and the number of deeds. There was a slight decline in land revenue due to the unfavorable season, and large remissions were granted in the southern district. No land was sold for coffee planting, but the survey and demarcation of estates already sold were progressing rapidly. Increased activity of trade is attributed to revision of the tariff, which has been assimilated to that of British India, no less than 120 petty articles having been struck out of the export schedule, and the export duty on coir-matting, an important article, abolished. Both the salt and the excise revenue increased; so also did that of forests, the increase being wholly due to large sales of cardamoms. A falling off in timber transactions points to defective administration of the valuable State forests. In spite of the relief granted to trade, the total revenue of the State reached the unprecedented sum of 559,188 *l.* Only 89,417 *l.* was spent on public works; and no new work was undertaken. A more liberal policy in regard to public works is much to be desired. Satisfactory progress was made with the building of the Napier Museum at Trevandrum, a work which is perhaps destined to mark the revival of native architecture in South India. Education progressed steadily, and the position of female education is said to be probably better than in the neighbouring British districts. Vaccine operations rose in number; but there was a decrease in the attendance of patients at the several hospitals.

Cochin. In Cochin, during the year ending 15 August 1876, there was a slight improvement shewn in the administration of civil justice, but that of criminal justice seems to call for reform, no less than 68 per cent. of the persons charged having been acquitted. The revenue from all sources was 127,278 *l.*, and exceeded that of the previous year by 2,123 *l.* Land, abkari, opium and timber were the headings that shewed an increase, while there was a decline in customs' collections, salt, and judicial receipts. A continued decline in the salt revenue is attributed by the Salt Commission as mainly due to the loss of a market in Malabar, consequent on the equalisation of prices, and not to decreased consumption of salt by the Cochin people. Moderate progress was shewn by the educational department. A Director of Education was appointed. In the high school the number of pupils rose considerably. On public works 23,148 *l.* was expended, the outlay being judiciously distributed on roads, canals, and buildings. There was a falling-off in the number of patients treated at the Ernacollum hospital, but the number of vaccinations performed in the State increased.

Pudukota. In Pudukota, during the Fasli year ending 30 June 1877, the settlement begun in the preceding year of the Rája's debts progressed, and it was hoped that the transaction would shortly be completed. Owing to the prevalence of drought, the sanitary condition of the country was bad, and agrarian crime increased. A regular police force, which was established in September 1875, has on the whole worked fairly, but its constitution had to be subsequently reorganised. The Registration Act was introduced and worked well. Under education the progress was satisfactory; attendance at the Rája's school increased from 113 to 163, and a branch school was opened in each of the three taluqs. At the hospital the number of patients rose from 6,945 to 7,664. A preliminary survey of the territory was in progress during the year, and great advantages may be expected to result both to the State and to the ryots, when a regular survey and settlement are completed. Owing to a somewhat

unfavorable season the revenue slightly declined; the actual money collections were 38,202 *l.*; while the current expenditure was 61,435 *l.*, including 31,281 *l.* paid towards liquidation of the Rája's debts. The Rája himself shewed a decided interest in famine matters, and an anxiety to do all he could for the relief of the distressed poor.

States under the Government of Bombay.

Excluding Baroda, there are within the limits of the Bombay Presidency the territories of 360 chiefs and rulers, with a total area of 67,370 square miles, a population of about 7 millions, and a yearly revenue estimated at above 3,500,000 *l.* Of these Native States, the territory which on account of minority or misrule of chiefs was during 1876–7 under the entire management of the political officers of the Bombay Government, comprised an area of 23,700 square miles, a population of 3,443,000 souls, and an estimated revenue of 1,385,000 *l.*

Cutch. The principal State is Cutch, with an area of 6,500 square miles, a population of 512,000, and a revenue of 253,267 *l.* The Ráo is a minor, and makes good progress with his education. His only sister was married on 19 January 1877 to the Máhárája of Bickaneer in Rájputána. The late Ráo spent large sums in removing difficulties, and paid 50,000 *l.* to the bridegroom for his travelling expenses. The Máhárája (who had been excused attendance at the Delhi Assemblage) came to Cutch, with about 6,000 followers, 25 elephants, and horses, camels, and bullocks in proportion. All the host had to be fed by the Cutch authorities during the Rája's stay. The marriage festivities passed off gaily, and without a mishap, but the ceremony entailed an outlay of 40,000 *l.*, or nearly a quarter of the whole year's expenditure.

Edar. In 1875 the expense of the Edar chief's visit to Bombay, and of his own and his sister's weddings, and again, in 1876, his marriage to a second and a third wife, have added much to the burdens of the State, and caused a deficit in the two years of 22,545 *l.*

Káttywár. The condition of Káttywár steadily improves. During 1876-7 the public peace was unbroken. Vernacular education continued to make rapid progress. The schools increased from 413 to 462. The Rájkumár College had 32 pupils on its rolls, including, for the first time, 2 Márathas.

Bária. The young Rája of Bária, one of the Rewa Kánta chiefs, came of age in 1876-7. His territory has an area of 813 square miles, and a population of 55,000 souls. During the 11 years that the State has been under political management, the revenue has been raised from 15,232 *l.* to 17,210 *l.*; and, though over 70,000 *l.* has been spent on public improvements, the State has been handed over to the chief free from debt, and with a credit balance of nearly 20,000 *l.*

Kolhápur. In Kolhápur large sums are every year spent on public works. In 1876-7 the amount was 24,218 *l.*, nearly a quarter of the whole expenditure. Water-works were completed during the year.

Southern Márátha States. All the Southern Márátha States suffered severely from drought and dearness of grain during 1876–7; but in all the Agency-managed of these States much progress was made in the construction of public works.

Aden. The relations of Government with the chiefs near Aden were satisfactorily maintained. There was a marked decrease in crime, mainly due to the fact that crime among the Somális was less prevalent during 1876–7 than in former years. The financial results of the municipal administration were also very favorable.

XIV.

FRONTIER RELATIONS.

Our political relations with Afghanistan during 1876-7 were not cordial. A proposal made by the Viceroy to send a temporary mission to Kabul or some other place in Afghanistan, which it was hoped might place matters on a better footing, was rejected by the Amir, and a conference subsequently held at Peshàwar between His Highness' Minister, Syud Noor Mahomed Shah, and Sir Lewis Pelly led to no result. FRONTIER RELATIONS. Afghanistan.

The relations of the Punjab Government with the independent tribes adjoining its territories were during 1876-7, with one or two exceptions, of the most peaceable and friendly character. If the whole condition of the border, from Hazára to Sind, be considered, it will be found that in no year since the annexation of the Punjab has the border been generally more tranquil than in 1876-7. The Hazára border remained absolutely quiet; independent tribes committed no offences of importance; the relations of the Government with them, one and all, improve year by year. Beyond the Hassan Khel and Pass Afrídi dispute, which affected a small portion of the Pesháwar border, and one important case of the Uthman Khels, the relations of the British authorities with the independent tribes on the Pesháwar frontier, and more especially on the border of Yusafzai, were during 1876-7 as satisfactory, and as unmarked by any events of importance, as during any previous year since the British occupation of the Pesháwar valley. The outrage committed by the Uthman Khels was a raid, on the night of 7 December 1876, upon unarmed Mahomedan coolies engaged on the head works of the Swát Canal. Many workmen were killed and wounded, and the assassins managed to effect their escape. This outrage brought upon its perpetrators their virtual excommunication by the Akhund of Swát, the most revered spiritual chief in the Northern Himalayas, and the instigators of the murders were punished by banishment and forfeiture of land and allowances. During 1876-7 the Akhund of Swát, in spite of great pressure from without, urging him to adopt a hostile attitude toward the British Government, persistently refused to depart from the neutral and almost friendly demeanour he had adopted for some years past. The death of this aged chief has since been reported. Excepting the few miles of border fronting the hills occupied by the Pass Afrídis, the frontier of the Kohát district was never in a less disturbed state than in 1876-7. The chief event was the rupture with certain sections of the Adam Khel branch of the Afrídi tribe, who were under blockade during the greater part of the year. This dispute arose in connexion with proposals for the construction of a road practicable for wheel traffic through the valley uniting the Pesháwar and Kohát districts, and known by the name of the Kohát Pass. The Pass Afrídis generally were willing to agree to the proposals of Government; and the question would have been amicably settled but for the opposition of one contumacious village, called Sherakki, which absolutely refused to assent, and proceeded to offer so many insults to the Government that the latter were compelled to close the Pass, and prohibit Afrídi trade. Hostilities at once began, but the Pass Afrídis, a small section of about 1,000 fighting men, alone were implicated up to August 1876. The Jowákis, who had been entrusted by Government with charge of a tower, proved treacherous, and were punished by a heavy fine, which they paid; after which they remained neutral till the end of the year. The Hassan Khel and Ashu Khel, the other sections of the Adam Khel, were included in the blockade in August 1876. The Hassan Khels sent in their submission to Government in January 1877, and the resistance of the Pass Afrídis collapsed in March. Sir H. Davies had the satisfaction, before retiring from the office of Lieutenant Governor of the Punjab, of himself receiving the submission of the hostile sections. The terms he then imposed have been observed faithfully. A very fair mountain road has since been constructed through the Pass. Both the Pass and Hassan Khel Afrídis remained strictly neutral during the operations that had to be undertaken against the Jowákis after the close of 1876-7. Uninterrupted tranquillity prevailed during the year throughout the three districts of the Deraját, namely, Bannu, Dera Ismail Khan, Punjab Border Tribes.

FRONTIER RELATIONS.

and Dera Gházi Khan. In the Bannu district, reinforcement by the Amir of Kabul of his garrison in Kurram and Khost, and reported war preparations, caused a little local excitement for a time. On the Dera Gházi Khan border there is a largely increasing trade between British territory and the countries to the west of the Sulemán range through some of the passes, in which excellent roads have been made.

Arakan Hill Tracts.

In the hill tracts of Northern Arakan there was one instance during 1876-7 of aggression from without, a raid having been made on a village by a gang of Shandoos. Punishment was inflicted on the raiders by means of an expeditionary police force.

Western Karennee.

The frontier between Burma and Western Karennee was visited and marked off early in 1876, by a party of English officers, in pursuance of the previous year's treaty.

Burma.

Nothing occurred during 1876-7 to interrupt the usual state of friendly intercourse with Upper Burma.

Siam.

Intercourse with Chiengmai (or Zimmay) was not altogether satisfactory during 1876–7. The treaty of 1874 with Siam has not been followed by real co-operation in the suppression of frontier disturbances, and the supineness of Chiengmai officials has been the subject of serious remonstrance.

XV.

MILITARY.

STRENGTH, COST, &c.

For the year 1876-7 the established strength of the British and Native armies in India, exclusive of native artificers and followers, was respectively 64,902 and 125,246, making a grand total of 190,148. The gross military expenditure in India and England rose from 15,308,460 *l.* in 1875-6 to 15,792,112 *l.* in 1876-7, shewing an increase of 483,652 *l.* This increase was distributed in the following manner: payments in India taken altogether exceeded the previous year's amount by 121,927 *l.*; while, as regards the expenditure in England, there was an increase of 32,093 *l.* in the cost of stores, of 102,945 *l.* for effective services, and of 226,687 *l.* for non-effective services.

Bengal.

No general account of the military history of the Bengal army during 1876-7 has yet been received. Its established strength for the year was 40,372 British and 63,957 Natives, or a total of 104,329. It is composed of six regiments of British and 19 of Native cavalry, 48 batteries of British Artillery, and 32 battalions of British and 49 regiments of Native Infantry.

Punjab.

The Punjab Frontier Force has its head quarters at Abbotabad, and garrisons the whole of the Punjab Frontier, except Peshâwur. In the line of outposts the force is assisted by the Derajât Frontier Militia. A body of Punjab troops forms part of the present garrison of Quetta in the territories of the Khan of Khelât. The strength of the force in 1876-7 rose from 12,402 to 12,540, and the cost from 352,028 *l.* to 367,929 *l.* The Bengal Army in the Punjab during 1876-7 numbered 16,528 British and 18,608 Native troops, with 97 field guns. Blockade of the Kohât Pass Afrídis was enforced during nearly all the year.

Madras.

With regard to the Madras Army, its strength at the close of 1876-7 was 11,597 British and 31,063 Natives, or a total of 42,660 against 42,093 at the close of the preceding year. Apart from the ordinary relief changes, certain movements took place in connexion with the Delhi assemblage, the Yunan mission, the Bustar outbreak, and duty on famine-relief works. One regiment of Madras Native Infantry was withdrawn from Saugor. The European Infantry Veteran Company was armed with Snider rifles; also nine regiments of Native Infantry, making a total of 22 regiments so armed. Pay to the lance ranks of British regiments was authorised, and the pay and allowances of the Native Army were raised. Bands also were sanctioned for all regiments of Native Infantry. Radical changes were ordered to be carried out in the Ordnance Department, in accordance with the recommendation of the Special Ordnance Commission, involving the abolition of the depôts at Trichinopoly, Cannamore, and Thayetmyo (British Burma), and the reduction of the Bangalore magazine to a first-class depôt, Rangoon (British Burma) to a second-class arsenal, and Toungoo (British Burma) to a second-class depôt. Contracts for the supplies of meat to the troops were generally satisfactorily performed. Sheep-breeding experiments on the Karen hills in British Burma for the supply of mutton to the troops at Toungoo gave promise of success, though conducted on too small a scale to test the scheme fully. Gardening operations at Thayetmyo and Toungoo were successful, and potato cultivation on the Karen hills seemed securely established. Indian tea was purchased at a more favorable rate than Chinese tea; the consumption of tea was 130,929 lbs. in 1876-7, and the average consumption per man was $12\frac{1}{2}$ lbs. Owing to the great drought in Mysore, the percentage of deaths among breeding cows in the Government cattle-breeding establishment at Hoonsoor rose from 5·92 to 17·05, while that of births decreased from 58·04 to 26·44. There were also several outbreaks of murrain, but the disease was kept well under. From about 1,472 horses brought to the remount depôt at Oossoor, near Bangalore, in Mysore, 818 were selected, consisting of 504 Australian, 274 Northerns, 25 Persians, and 15 Arabs, and costing 52 *l.* each on an average. Australian horses shewed more breeding than in previous years, but a great many had to be rejected for want of quality. Only a few Persian horses could be supplied, owing to the

STRENGTH, COST, &c.

demand in Bombay for the Government of India. Notwithstanding the severity of the season, the health of the horses was very good.

Bombay.

The Bombay Army at the close of 1876–7 had a strength of 11,298 British and 25,422 Natives, or a total of 36,720, as compared with 37,007 in the previous year. The army consists, besides sappers, of 1 regiment of British and 9 regiments of Native Cavalry; of 18 batteries of British artillery, with 83 guns, and 2 of Native Artillery with 8 guns; and of 9 regiments of British, and 30 of Native Infantry. The British portion during 1876–7 cost 549,300 *l.*, and the Native portion 728,133 *l.* "Other grants" of 1,010,489 *l.* for effective, and of 116,674 *l.* for non-effective, services brought the total army expenditure to 2,404,656 *l.* The mountain battery at Jacobabad was put on the same footing as those of the Punjab frontier force. An equipment for carrying field guns at Aden on camel back, as suggested by Brigadier General Schneider, was devised and sent to Aden for trial. The only smooth-bore ordnance now in artillery charge in the Presidency is with the heavy battery at Mhow. The question of introducing into the Bombay Native Cavalry the Bengal one-horse silledar system came under review. All authorities admitted its advantages over the Bombay system, but concurred that the pay of the troopers would have to be raised. On the ground of economy the Government of India decided that the reform must be held in abeyance. Ten gymnasiums were in operation at the end of 1876-7. During the last 9 months of 1876 the numbers passed in gymnastics were 4 officers, 40 non commissioned officers, and 1,020 men, and 8 officers, 11 non-commissioned officers, and 116 men in fencing, while 123 men learnt to swim. The usual long course examination for officers was conducted at Poona, and two short course examinations were completed at Poona and Mhow. The subjects of instruction comprise, for both long and short course, field fortification, military topography, military law, and tactics. In the long course the officers are also instructed in the interior economy of regiments, soldiers' accounts, and correspondence, as well as in riding. Alterations in the system of instruction and the adoption of circular bullseyes and centres prevent a comparison of the progress made in musketry by the British troops during the last two years. Martini-Henry rifles were about to be issued to the British regiments in lieu of the Snider. With the exception of the havildars of two regiments, the whole of the Native Infantry have been armed with the Snider rifle. The supply of remounts during the year was better than for some years past (probably due to the sanctioned price having been raised to 550 rupees). The remounts for the Bombay Presidency were chiefly Persian horses of good stamp and promising. The demand of the Government of India for 250 remounts from the Bombay market was met to the extent of 213 horses, including many fine Arab colts, of which there was a large supply. Her Majesty's Indian troop ships made during the season 9 voyages each way, and conveyed 22,164 passengers, of whom 10,302 were outward and 11,862 homeward bound.

HEALTH OF BRITISH TROOPS.

Health statistics* of the British troops in India for 1876 shew a marked reduction in the death-rate, which was 15·32 per 1,000, as compared with 17·48 in 1875. In the Bombay army it fell from 20·92 to 12·30; but the Madras rate rose slightly from 14·85 to 15·7. Considering the prevalence of epidemic disease among a famine-stricken population throughout a great part of the Bombay Presidency, the health of the troops there was very satisfactory. Contrasted with the previous 18 years, the average daily sick, admissions, total deaths, and deaths from cholera, were all below the average. Malarial fevers and venereal diseases were in all the Presidencies the principal causes of sickness. Hepatic and gastric affections were, as usual, much more prevalent in Madras than in the other Presidencies. Statistics of intemperance were on the whole more favorable. The number of cases reported in Bengal, which in 1874 was 10,988, fell in the two succeeding years to 8,926 and 7,136, but the number of total abstainers was 20 per cent. less in 1876 than in 1875. In Bombay, with a slight improvement in regard to drunkenness, there was an increase of 22 per cent. in the number of abstainers. In Madras, on the other hand, there

* For further information, *see* the Report on Sanitary Measures in India in 1876-7, presented to Parliament.

was an increase of drunkenness, and also an increase of over 40 per cent. in the number of abstainers. Out of the total number of 886 deaths among the entire British troops in India, 264 must be ascribed directly or indirectly to the effect of intemperate habits. HEALTH OF BRITISH TROOPS.

In the following account* of the health of the Native Army the figures are taken from the Surgeon Generals' returns, and not from the Sanitary Commissioners' reports. The ratios of admissions are calculated on the average strength present, and those of mortality on the total strength. HEALTH OF NATIVE TROOPS

Excluding Madras troops serving in the Bengal Presidency, the rate of admissions rose from 1,287·5 in 1875 to 1,407·7 in 1876, while the death-rate fell from 16·3 to 14·7. For the 10 years ending with 1875 the rates were 1,365·4 and 18·0 respectively. Bengal Army.

There was a great increase of admissions in the Regular Army by the side of a decrease in those in the Central India Force and the Punjab Frontier Force, and also a marked decrease in the general death-rate. This circumstance is not explained. The unhealthiness of certain stations for sepoys recruited from the Upper Provinces and Oude is, however, enough to account for a higher admission-rate. The death-rate was a very favorable one, particularly when the great differences in climate and other respects of the many stations in this large Presidency are taken into account. "It will," the Surgeon General remarks, "doubtless be accepted as an ample proof of the excellence of the conditions of service, and of the constant attention paid to the sanitary arrangements of cantonments, as well as to every question which bears either on the efficiency or general welfare of the army." More than half of the total admissions were caused by fevers, which were unusually prevalent in the Presidency, Eastern Frontier, Meerut, Lahore, and Rawul Pindee commands. From this cause arose 23 per cent. of the total mortality. The dependence of pneumonia on defective clothing and dietary having been pointed out on various occasions by the Army Sanitary Commission, the matter has received attention in India, with the result of a decided reduction in chest diseases during 1876. Of 163 cases of cholera, 88 proved fatal.

In the Madras Army the admission-rate was 769·2, and the death rate 13·8, per 1,000, while the invaliding rates were, for discharge 32·9, and for sick leave 21·1. While the admission-rate has gradually declined since 1872, there has been an equally steady rise in the rates of mortality and discharge since 1873 in the former case and 1872 in the latter, so that it would appear that sickness, though less frequent, has been more serious in its effects. It is found, as a general rule, that the death rate is lowest among Mahomedan sepoys, which is thought to be due to their universal use of animal food. The year was marked, in the Presidency, by widespread and fatal epidemics of cholera and small-pox. In the Native Army, however, there were only 103 cases of the former disease, with 57 deaths, and of the latter 84 cases and one death. Malarious diseases were more prevalent in 1876 than in the two preceding years, and to them was due at least half of the total mortality. Among the causes of invaliding for discharge, rheumatic affections headed the list. Madras Army.

The death-rate in the Bombay Native Army during 1876 was 13·1 per 1,000, against 12·2 in 1875, and 10·9 in 1874. In the Sind Division the rate was as high as 31 per 1,000. The admissions to hospital also increased considerably, these unfavorable conditions being principally due to the greater prevalence of malarious fevers, especially among the troops of the Sind Division. In this part of the army there was also a large increase of admissions for rheumatic affections, lung and bowel diseases, and cholera. The general health of the troops in the other divisions was fair. The total number treated for malarious fevers was 12,528, out of a strength of 22,583. The stations which suffered most from this cause were Poona and Mehidpur; at the former the evil lies mainly in the condition of the lines, and at the latter in the faulty selection of the site. Cholera appeared in all the divisions; 112 cases were treated, 53 of them proving fatal. Of these, 96 cases and 46 deaths occurred in the expeditionary force sent to Kalát. In the previous year cholera was confined to the Poona and Northern Divisions; 120 cases having been treated, with a mortality of 71. There were 57 cases of smallpox, with only one death. Considering what a virulent Bombay Army.

* For further information, *see* the Report on Sanitary Measures in India in 1876-7, presented to Parliament.

HEALTH OF NATIVE TROOPS.

epidemic of smallpox raged among the civil population of the Presidency during part of the year, the comparative immunity of the army from the disease speaks well for the manner in which protective measures were carried out by the medical officers.

VENEREAL DISEASE.

Bengal.

Experience of the practical working of the Contagious Diseases Acts in Calcutta is said to justify the conclusion that a very fair measure of success has been attained; and in the various cantonments also the working of the Acts was considered to be generally successful.

Punjab.

The Contagious Diseases Act (XIV. of 1868) is not in force in any part of the Punjab, but rules made under the Act for regulating cantonments (XXII. of 1864) are in force in nearly all the cantonments. Venereal disease among the British troops was, in 1876, kept down to or below the averages of past years, and was of a less virulent type. A special report, recently submitted, on the working of the lock hospital system in the Punjab, shewed that the system worked moderately well, and has been, on the whole, beneficial to the British soldier; but that its effects were greatly marred by a large amount of clandestine prostitution, the only check for which can be the most vigilant attention of regimental authorities and the civil police.

Central Provinces.

In the Central Provinces the four lock hospitals are considered really to accomplish some material good in reducing venereal diseases among the troops. The great hindrance to true success is shewn to be the resorting of soldiers to unlicensed prostitutes.

British Burma.

In addition to seven lock hospitals already existing in British Burma, a new one was opened at Henzada early in 1876. No very great success could be claimed in the enforcement of the law for the prevention of venereal disease. Laxity in detection is imputed to the police, and the magistrates were unduly lenient in their punishments for breaches of the rules.

Madras.

Besides the civil lock hospital at Madras, there were nine military lock hospitals in operation during 1876-7 in the Madras Presidency. In the military hospitals 1,605 women were treated. Syphilis is said to be diminishing among the British troops, as well as among registered women. The lock hospitals are effecting good, in proportion to the energy with which registration is carried on and clandestine prostitution is detected, but the former was still defective, and the latter prevalent. Regarding the beneficial effects on public health of restrictive measures, the health officer remarks, "that out of 10,827 European troops, and 1,400 married women, having 2,900 children born to them, and now living, not one of these children has been a subject of syphilis. This can scarcely be believed in a country in which venereal disease is so prevalent." This result may also be due to exceptional morality of married soldiers and their wives in the Madras Presidency.

Bombay.

The ratio of admissions into hospitals from venereal disease per 1,000 of European troops throughout the Bombay Presidency in 1876 was 75·37, or 20·42 in excess of the ratio in the previous year. The maintenance of the institutions cost 3,362 *l.*

ARMY SANITATION.

* During the financial year 1876-7, a grand total of 725,917 *l.* was expended on works designed more or less to add to the health and comfort of the troops, and more particularly of the British troops in the Bengal Presidency. Of this sum 307,859 *l.* was devoted to original works, 239,770 *l.* to repairs, and the remainder to establishment, &c. The Government of India have directed the appointment of local committees with a view to the sanitary supervision of native villages in the vicinity of cantonments, a matter of which the urgency has been frequently pressed by the Army Sanitary Commission.

British Army.

Several improvements in connexion with barracks and hospitals were carried out during 1876 in the Madras Presidency. At Poonamallee a new hospital to accommodate 90 men was begun in September. At Bellary the surface drainage was improved, and 2 new barrack blocks were completed and occupied. The hospital at Trichinopoly was repaired, and its ventilation improved. At Bangalore and at Cannanore there was improvement of the drainage. At

* For further information, *see* the Report on Sanitary Measures in India in 1876–7, presented to Parliament.

Kamptee 3 barrack blocks were enlarged and better ventilated, and others were in course of alteration. ARMY SANITATION.

An aggregate sum of 69,690*l.* was expended on military sanitary works in connexion with the Bombay army, principally on barracks at Ahmedábád, Kolába, and Aden. A large tank was cleared at Assirgurh, at a cost of 3,334 *l.*; and the drainage was improved at several stations. The water supply for the Bombay army was reported to be generally good and abundant. Hospital accommodation at most stations was sufficient. The Kolába station hospital, however, was "insufficient for the requirements of the station, "both in number of beds and nature of accommodation. Answering very well "as a regimental hospital for the artillery and infantry in the old barracks, it is "insufficient for additional numbers now put in it; the building has, moreover, "been shut in by new barracks built close by, mostly to windward, the latrines "of which, especially, are in dangerous proximity to it." The construction of a new hospital on a fresh site was under consideration. At the same station improvements were made by levelling the ground on which the barracks are situated, and cutting drains to promote the escape of surface water. Some swampy ground on the windward side of the barracks is a source of fever; measures for remedying this defect were in contemplation. At Ahmedábád one of the new Royal Artillery barracks was converted into a hospital for the British sick, in place of the one destroyed by the flood in September 1875.

It has been arranged that, in the event of any serious outbreak of infectious disease on board any of Her Majesty's troopships passing Suez *en route* to Bombay, sick cases should be landed at Aden. Orders have also been issued for the establishment of a small camp at Kolába for the reception of scarlet fever patients; and Government has approved of Butcher's Island as a sanatorium during any serious outbreak of scarlet fever.

The barracks and hospitals, on the standard plan, which are gradually being built throughout the Bengal Presidency for the accommodation of the Native Army are considered by the surgeon general to meet the recognised sanitary requirements of affording a sufficiency of superficial and breathing space, as well as of being well ventilated and well lighted, and of being thoroughly free from ground or wall damp in consequence of being built on raised foundations. Regimental hospitals during 1876 generally afforded sufficient accommodation for the sick. The equipment of the hospitals, whether as regards furniture, medicines, or surgical appliances, was complete and in effective condition, and the comfort and welfare of the sick were closely attended to by the regimental officers. The trench system of latrine, which is now coming into general use, appears to be a great sanitary success, and the dislike of natives to resort to places of this kind is being practically overcome. Drinking water used by the sepoys was generally abundant, and, with few exceptions, of good quality. A suggestion of the surgeon general to have one station of known unhealthiness thoroughly drained, in order to observe the effect upon health, has been favorably received by the Government of India, and the selection of a station for the purpose was under consideration. Bengal Native Army.

In the report on the Madras Native Army for 1876 assurance is given that the general conservancy of the regimental lines, latrines, bazaars, and hospitals is most carefully attended to by the medical officers, the military authorities giving all the aid in their power. The weak point is the system of family hutting; the sepoy huts himself and his family, and has no funds for improvements or proper sanitary arrangements. In many cases the sites are unhealthy, the lines overcrowded, the huts badly ventilated, and the drainage defective, entire reconstruction being the only efficient remedy. Madras Native Army.

In all the divisions of the Bombay Presidency the arrangements for the cleanliness of the regimental lines were carefully carried out; there was no overcrowding; the ventilation, conservancy, and general sanitary state were attended to as fully as the numerous more or less permanently faulty conditions of the lines permitted. The improvement most urgently needed is proper drainage. The lines of the 20th Native Infantry at Bombay were reported to be objectionable in many respects, especially as regards locality and drainage. The Sonapore outlet drain was objectionably near to the lines of the 21st. In several cases the proximity of wells to latrines was a cause of illness. In a Bombay Native Army.

ARMY SANITATION.

tank cleaned out at Assirgurh mud was found 24 feet deep. As a rule, the water supply was pronounced by the medical officers to be good and abundant. The Acting Surgeon General, however, remarks: "That in many cases the "water supply needs improvement is but too evident, and it is hardly necessary "to repeat that no rational measures of improvement can be undertaken until "the varying conditions of the water itself and of its source are in each case "thoroughly investigated." Regimental hospitals generally were sufficiently commodious and well ventilated.

India Office.

HERBERT REES PHILIPPS.

STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION

OF

INDIA

DURING THE YEAR 1877-8.

FOURTEENTH NUMBER.

(PRESENTED PURSUANT TO ACT OF PARLIAMENT.)

Ordered, by The House of Commons, *to be Printed,*
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STATEMENT

EXHIBITING THE

MORAL AND MATERIAL PROGRESS AND CONDITION OF INDIA

DURING THE YEAR 1877-8.

[*The respective Paragraphs in each Chapter of this Statement have been written in continuation of the corresponding portions of the Serial Statements for the Official Years since* 1872-3.]

I.

ADMINISTRATION AND LEGISLATION.

ADMINISTRATION. HER Majesty the Queen and Empress of India was pleased to issue on 31 December 1877 two Royal Warrants for the institution of two Orders of Distinction to be styled *The Order of the Indian Empire* and *The Imperial Order of the Crown of India*. The first of these Orders was for the purpose of rewarding services to Her Majesty and Her Indian Empire, and of commemorating the proclamation of Her style and title of Empress of India in Her Indian Dominions. Twenty-three Councillors of Her Majesty the Queen, for and in Her Indian Empire, were declared to be *ex-officio* and for life Companions and Members of the Order, and fifty other gentlemen, English and native, were nominated Companions. The second Order also commemorated the assumption of the Imperial title, and was to be enjoyed by the Princesses of the Royal House, and the wives and other female relatives of Indian Princes and others.

Home. Throughout the year 1877-8, the Marquis of Salisbury held the office of Secretary of State for India. Mr. Robert Staunton Ellis, C.B., was appointed a Member of the Indian Council in April 1877, but died in the following October. The other appointments during the official year were those of Colonel Sir William Lockyer Merewether, K.C.S.I., C.B., Mr. Robert Anstruther Dalyell, and Lieutenant-General Sir Henry Wylie Norman, K.C.B., C.I.E.

India. Lord Lytton, G.M.S.I., G.C.B., G.M.I.E., was Viceroy and Governor General of India throughout 1877-8. Mr. Whitley Stokes took his seat at the Council of the Governor General on 16 April 1877, in succession to Sir Edward Clive Bayley, K.C.S.I.

Bengal. The Honorable (now Sir) Ashley Eden, C.S.I., C.I.E., was appointed Lieutenant-Governor of Bengal with effect from 1 May 1877. Few administrative changes took place during the official year 1877-8, but an increase in the secretarial staff was rendered necessary by the readjustment of the financial relations of the Local Government and the Government of India, and by the extension of the system of provincial finance.

Assam. Assam continued during 1877-8 under the administration of the Chief Commissioner, Colonel Richard Harte Keatinge, C.S.I., V.C.

N. W. Provinces and Oudh. Sir George Ebenezer Wilson Couper, Baronet, K.C.S.I., C.B., C.I.E., was Lieutenant-Governor of the North-Western Provinces and Chief Commissioner of Oudh throughout 1877-8. During the year the seat of the government of the

ADMINISTRATION.

united provinces was made to vary between Lucknow, Allahabad, and Naini Tal. Steps were taken to bring into unison the practice and procedure of the two provinces in the various departments. On the whole, the work of amalgamation progressed favorably; and Sir George Couper considers that it has conduced greatly to the increased efficiency of all branches of the administration The savings resulting from the measure are to be devoted to the strengthening of the judicial branch, and of the subordinate revenue establishments in Oudh. Although more than one section of the Oudh community looked forward with apprehension to the probable effect of the amalgamation with the North-Western Provinces, yet that measure was accepted almost without demur. The only exception was the presentation to the Secretary of State of a memorial, to which 30,000 signatures were attached, purporting to be on behalf of the nobility, gentry, talukdars, and householders of Oudh, and praying for the restoration of the separate administration. It was ascertained on inquiry that the greater number of the signatures consisted of lists of persons residing in the various quarters of Lucknow, and that only 58 of them represented talukdars. The arguments against amalgamation were mainly the probable interference with existing rights and privileges, and the injury to Lucknow from the change of seat of Government. In forwarding the memorial, Sir George Couper pointed out how little foundation there was for the apprehension expressed, and in his reply the Secretary of State adhered, without hesitation, to the policy he had deliberately sanctioned. It is believed that the memorial was really the work of a very few individuals, to whom the amalgamation was distasteful on personal grounds. With the view of securing a more efficient and intelligent staff of subordinates in the public service, a code of rules was published, to take effect from 1 January 1879, prescribing the tests to be undergone by all candidates. It was arranged that the great middle class (vernacular and Anglo-vernacular) examinations of the Educational Department should constitute the standard, with a few unimportant modifications. In this way the existing arrangements of the Educational Department were turned to practical account, and due provision was made for facilitating the admission of candidates from private schools.

Punjab.

Mr. (now Sir) Robert Eyles Egerton, C.S.I., C.I.E., was Lieutenant-Governor of the Punjab throughout 1877-8.

Central Provinces.

Mr. John Henry Morris, C.S.I, was Chief Commissioner of the Central Provinces during 1877-8.

British Burma.

Mr. Augustus Rivers Thompson, C.S.I., was on 1 May 1877 confirmed in the appointment of Chief Commissioner of British Burma. He retained the office till the close of the year, when he was transferred to the Viceregal Council, being succeeded by Mr. Charles Umpherston Aitchison, C.S.I., on 31 March 1878.

Ajmere.

Mr. Leslie Seymour Saunders was the Commissioner of the Ajmere and Mhairwarra districts during 1877-8. The most important event of the year was the reorganisation of the Ajmere Commission. Ajmere-Mhairwarra has been divided into two districts for all matters of criminal procedure and general executive administration; while in matters of revenue, of civil justice, of superintendence of police, of education, and forest conservancy, the two tracts are still one.

Berar.

In Berar, which continued during 1877-8 under the administration of Colonel Sir Richard John Meade, K.C.S.I., the Resident at Hyderabad, several changes took place in the personnel of the Commission.

Mysore and Coorg.

Every administrative department in Mysore during 1877-8 was affected by the grievous famine, which reached its height in that year. Mr. Charles Burslem Saunders, C.B., was the Chief Commissioner of the two provinces of Mysore and Coorg until the close of the official year, being succeeded on 1 April 1878 by Mr. James Davidson Gordon.

Madras.

The Governorship of the Presidency of Madras was still occupied during 1877-8 by the Duke of Buckingham and Chandos, G.C.S.I., C.I.E. The Government, as a body, remained in Madras during the whole of 1877, the usual transfer of the seat of Government to Ootacamund not taking place that year on account of the famine. Inconveniences caused by former irregularities of recruitment of the Covenanted Civil Service were beginning to be severely felt in the Presidency, in the same way as they have been felt in other administrations. An abnormal number of men were appointed during 1862, 1863, and

and 1864, and a great block has occurred to promotion. It appeared from careful calculation that the difficulties were likely to increase rapidly. ADMINISTRATION.

Since 1 May 1877 the Bombay Presidency was administered by Sir Richard Temple, Bart., G.C.S.I., C.I.E. A redistribution of the charges of the Commissioners was made during 1877-8, the appointment of a third Commissioner having been sanctioned. Superintendence of the political work of the less important Native States was transferred to them. The retirement scheme for covenanted civilians, which was to have had effect only up to 31 December 1877, was extended for another year, in consequence of the pressure of work in the famine districts, which prevented any revenue officers from taking advantage of the concessions. Bombay.

Municipal administration in Bengal is based on two Acts of the Bengal Council, namely, Act IV of 1876, which regulates the affairs of the Calcutta Municipality, and Act V of 1876, which applies to all other municipalities in the province. Under the former Act was given to the town of Calcutta for the first time an elective system, which came into operation in October 1876. The new corporation is composed of 72 Commissioners, of whom 48 are elected, while 24 are nominated by the local government. The year 1877 was the first working year under the new system, and it was hoped that some progress was made in sanitary improvement; but the municipality was not very successful in the management of its financial affairs, while the elective system scarcely secured for the town the services of the best class of either native or European representatives. In the interior of Bengal the number of municipalities during 1877-8 was 193, of which 25 were first-class municipalities, and 97 second class, while there were 69 unions and two stations. The system of representation by election was in force in only three towns in the mofussil, namely, Burdwan, Serampore, and Kishnaghur. The gross income of all the district municipalities during the year amounted to 200,773 *l.*, and the expenditure to 199,059 *l.* Great improvements were urgently needed in the sanitation of most municipalities, and though the want of money stands in the way, more was being done in this direction than formerly. MUNICIPALITIES. Bengal.

One addition was made to the four existing municipal institutions of the Province of Assam during 1877-8; the station of Dibrugarh having been declared a township under Bengal Act VI of 1868, from the beginning of the year. There was an increase in both receipts and expenditure on account of municipalities, as compared with the previous year, due mainly to the increase in the number of municipalities. No works of any importance were carried out, but the ordinary petty works undertaken by the municipalities received due attention. Assam.

During 1877-8 the number of municipalities in the North-Western Provinces remained at 80; but the octroi was introduced into the Meerut cantonment tentatively for one year, and the measure proved financially a great success. Popular election continued to be the system followed for appointing members of municipal committees. The total income of the municipalities during the year from all sources was 235,900 *l.*, and the expenditure 207,153 *l.* More was expended on conservancy than in 1876-7, the increase being mainly due to the scarcity, which raised the cost of feeding bullocks, &c. The sewage farm at Allahabad proved a success; it has been suggested to the committee to acquire the land permanently from the landowners, as it will no doubt prove a valuable source of income. Important sanitary works were carried out in many of the municipalities. The municipal free schools were on the whole doing good work, but still some boys who should pay fees were obtaining instruction gratis. No new loans were granted to any of the committees. Altogether the results of the year are said to bear testimony to the growing vigour and success of municipal administration; and the interest taken by the committees in municipal affairs, and to the general introduction of improvements which promote the comfort and well-being of the inhabitants. In Oudh there were 28 municipalities in 1877-8, as compared with 24 in 1876-7. The only two municipalities of any importance are Lucknow and Fyzabad, and these are the only towns in the province in which the non-official members of the committee are elected by the votes of the ratepayers. It was not considered desirable as yet to extend the franchise to the other 26 towns, as the people N. W. Provinces.

MUNICIPALITIES. were not sufficiently educated to exercise or value the privilege of voting for members to represent them on municipal committees. The total income rose from 50,622 *l.* in 1876-7 to 51,817 *l.* in 1877-8, and the expenditure from 42,392 *l.* to 44,458 *l.*

Punjab. Municipalities in the Punjab are all constituted under Act IV of 1873. In 1877-8 the number and classes remained the same as in the previous year, viz., 8 of first class, 20 of second class, and 171 of third class. There was a decline in the income from 217,147 *l.* to 212,229 *l.*, and in the expenditure from 212,445 *l.* to 196,326 *l.* In most municipalities the taxation was derived principally from octroi. Under the orders of the Secretary of State the collection of octroi throughout the province was taken under direct management.

Central Provinces. In the Central Provinces during 1877-8 there were 58 towns under municipal government, all being constituted under Act XI of 1873. For the smaller towns, where interest in local government and taxation is slight, the members are nominated. In the larger towns elections are fairly popular. During the year several municipal committees spontaneously proposed that brokers should be brought under some kind of control and supervision. These men had made themselves objectionable by reason of their exactions. Acting for the interests of the public, the municipal committees drew up rules fixing the scale for brokers' charges; and as the Chief Commissioner was advised that the rules were within the provisions of the Act, the rules have been since sanctioned. The income for 1877-8 was 88,714 *l.*, and the expenditure 76,729 *l.*

British Burma. In British Burma during 1877-8 there were seven municipalities, with a total population of 263,411, and an income of 132,194 *l.* Per head of population the average incidence of taxation was 4 *s.* 2¾ *d.*, and of municipal income, 9 *s.* 1 *d.* The chief sources of income are taxes on houses and lands, liquor licences, rents of houses, gardens and markets, lighting, conservancy and water rates, and grants-in-aid from provincial funds. There is no octroi; but in most towns the markets are municipal property and yield a considerable revenue. The expenditure is mainly on police, conservancy and cleansing, roads, buildings, and water-supply. On education and on sanitary and charitable establishments very little was spent, and the neglect by municipalities of the former object especially led to no little discussion. The two chief requirements of most towns in the province are good drainage and conservancy arrangements and a good water-supply. For a long time to come a heavy outlay will be required to attain these objects. The municipal funds are for the most part sufficient for the purpose. Taxation is perhaps heavy in comparison with that in Indian towns, but the people are wealthy and not overburdened. Rangoon, to which about two-fifths of the total municipal population and revenue of the province belong, has made more progress than any other municipality; conservancy there is, on the whole, well carried out; and during the year waterworks were successfully brought to completion, by which a large quarter of the town, comprising nearly a fifth of the whole population, is supplied with good water. A comprehensive project for the whole town was approaching maturity.

Ajmere. With regard to the two municipalities of Ajmere, the cost of collection is small; the expenses of conservancy during 1877-8 were heavy, owing to the drought and scarcity of fodder; both committees spent large sums on original works, besides paying proper attention to repairs, while educational and medical grants were made as usual. The question of enlarging the municipal boundaries of the town of Ajmere was pending; and the Ajmere Committee has been made more representative of the various interests of the residents.

Berar. There were five towns under municipal government in Berar during 1877-8; in all these there are committees of official and non-official members nominated and elected. Out of 68 members, 26 were Europeans, and 42 natives. The total population within municipal limits was 81,659. The receipts of the municipalities amounted to 7,376 *l.*, and the expenditure to 6,658 *l.* Some reform was considered to be needed in the constitution of the municipalities to make them more efficient.

Mysore. Mysore contained 77 municipal towns in 1877-8, the same number as in the previous year. Their income was 44,845 *l.*, and the expenditure 35,238 *l.*

The

MUNICIPALITIES. Coorg.

The municipal administration of Coorg advanced a step during 1877-8 by the formation of three new municipalities, making five in all. Deriving their income mostly from octroi and taxes on professions, &c., these municipalities work only in a small way in improving the conservancy and communications in the several towns. The three new municipalities undertook no works and spent no money during the year.

Madras.

In Madras, during 1877-8, the municipal income of the presidency town, from rates, assessed taxes, and tolls, was 55,344 *l.*; the incidence of taxation, including tolls, per head of the population on the basis of the Census of 1871, being 2 *s.* 9 *d.* A large increase having been made to the conservancy establishment in the latter part of the previous year, a decided improvement was effected in surface cleansing. Some anxiety felt about the water-supply, owing to the lowness of the water level in the Red Hills Reservoir, was fortunately removed by the cyclone of May, which brought upwards of 11 feet of water into the reservoir. Nothing was done regarding the permanent drainage of the town. The total income of the Mofussil municipalities increased from 104,668 *l.* to 105,641 *l.*, but the expenditure declined from 108,995 *l.* to 106,155 *l.* In Tanjore, a scheme for improving the water supply of the town was matured, and the grant of a loan from Government of 20,000 *l.* for the purpose was under consideration. Municipal hospitals and dispensaries were, as in former years, most satisfactorily worked, and rendered excellent service during the famine. Orders were issued permitting one half of the Commissioners in ten important towns to be elected under a system of popular voting.

Bombay.

A rise of over 20,000 *l.* occurred during 1877 in the rateable value of immoveable or real property in the Bombay municipality. This was the first time for ten years that there had not been a falling off in the valuation. The total income of the municipality from all sources, exclusive of loans, was 324,145 *l.*, and the disbursements were 303,653 *l.* The water-supply from the Túlsi and Vehár lakes, sixteen miles distant, was being increased by means of important works, both at the reservoirs and in the city. A large health department was maintained at a net cost of 40,575 *l.* The land gradually being reclaimed on the flats at Tardeo by the deposit of street rubbish on it, is said to be well appreciated by gardeners and others for cultivation. The drainage scheme was at last accepted, and a loan of 270,000 *l.* raised to provide for its execution. The year was an exceptionally unhealthy one, and was rendered more so by the number of immigrants from the country above the ghâts that flocked into the city in search of work. Local self-government is being gradually introduced into the rural districts of the Presidency, beginning with the chief towns and commercial centres. Many of the corporations have been established for some time, and have effected very great improvements in the conservancy buildings and general sanitary condition of the towns. "On the whole, however, it has been found that the spirit of self-government is of remarkably slow growth outside the principal towns, and that few of these institutions would stand if official management were withdrawn." The sanitary benefits in small places are not all commensurate, in the opinion of the Bombay Government, with the annoyance caused to the inhabitants in collecting the taxes. An important change was effected during the year by the abolition of the system of farming the octroi in favour of departmental collections. For the year 1877-8 the municipal revenues were 368,477 *l.* as compared with 380,219 *l.* in 1876-7, the disbursements being 239,424 *l.* against 261,085 *l.*

LEGISLATION. India.

Twenty-two Acts passed by the Legislative Council of India received the assent of the Governor General during 1877-8. Certain of these Acts are mentioned below in the paragraphs relating to the provinces to which they were specially applicable. Among the general Acts may be mentioned XI of 1877, to facilitate the admission of military lunatics into asylums; XV of 1877, to provide for the limitation of suits; XVIII of 1877, to amend the law relating to salt, and raising from 28 December 1877 the duty on salt in Madras and Bombay from *Rs.* 1. 13. to *Rs.* 2. 8. per maund of $82\frac{2}{7}$ lbs.; I of 1878, *The Opium Act*, to amend the law relating to opium; VI of 1878, to amend the law relating to treasure trove; VII of 1878, to amend the law relating to forests,

LEGISLATION.

forests, the transit of forest produce, and the duty leviable on timber; VIII of 1878, to consolidate and amend the law relating to the levy of sea-customs-duties: IX of 1878, for the better control of publications in oriental languages; and XI of 1878, to consolidate and amend the law relating to arms, ammunition, and military stores.

Bengal.

During 1877–8 only three Bills were actually passed into law by the Bengal Council. Of these, the most important was the Bengal Licence Act, which was designed to enable the local government to meet the liabilities imposed upon it by the financial policy of the Government of India. It provided for the levy of a licence fee on trades, dealings, and industries throughout Bengal.

N. W. Provinces and Oudh.

Three Acts, specially applicable to the North-Western Provinces and Oudh, were passed in 1878 by the Legislative Council of India. One of these Acts was a revised edition of the licence tax of 1877, levied to meet the heavy liabilities involved by the provincialisation of the Canal Department; while the two others were passed to legalise the expenditure on railway and irrigation projects of a portion of the 10 per cent. cess levied under two Acts of 1871. Of indirect legislation, in the shape of rules framed by the local government under the provisions of existing law, the more important subjects were land-improvement, licence tax, *patwaris* in Oudh, custody of attached live-stock, and property of eunuchs.

Punjab.

During 1877–8 three Acts having exclusive reference to the Punjab were passed by the Legislative Council, viz., *The Punjab Courts Act* (XVII of 1877), the object of which was to consolidate and amend the law relating to Courts in the Punjab; *The Punjab Local Rates Act* (V of 1878), the object of which was to amend the law relating to the levy of rates on land in the Punjab; and XII of 1878, for the further amendment of the Punjab Laws Act, 1872. Among rules made by the local government during the year may be enumerated those providing for the safe custody of records, for fees for the registration of documents, for the proper preparation and punctual submission of returns required from registered companies, and certain rules under the new code of civil procedure.

Central Provinces.

Considerable inconvenience is stated to have been felt in the Central Provinces from the unsuitableness of the existing laws on certain matters regarding which two draft bills had been for some time under the consideration of the Government of India, but were not yet passed. One was the Tenancy Bill, intended to consolidate and amend the law regulating the relations between agricultural tenants and their landlords, and to amend the law under which such tenants can sue and be sued; the other was for declaring and consolidating the law relating to land revenue and the jurisdiction of revenue officers in the Central Provinces.

British Burma.

Only one Act, relating solely to the Province of British Burma, was passed during 1877–8, namely, XIII of 1877, providing for the execution of works urgently required in connexion with embankments..

Ajmere.

In the substantive law of Ajmere certain novelties of procedure were introduced by new enactments during 1877–8. The agricultural judgment debtor has had secured to him, at the worst, a subsistence allowance, and sufficient grain for his next sowing. The Courts were empowered to use their discretion in the matter of arrests in execution of decrees; the rights of Government in mines, quarries, tanks, and streams, were recited; and a number of local laws, customs, and rules of procedure were, for the first time, included in the Statute Book.

Berar.

The Specific Relief Act (I of 1877) and the Indian Registration Act (III of 1877) were extended to Berar during 1877–8.

Mysore.

Three enactments were during 1877-8 made applicable to Mysore, namely, the Indian Registration Act (III of 1877); the Indian Limitation Act (XV of 1877); and Bengal Act (I of 1869), for the prevention of cruelty to animals.

Coorg.

No more Acts were extended to Coorg during 1877–8.

Madras.

It having been considered undesirable that Malabar should be allowed to remain in a more favorable position than other districts as regards local taxation, Madras Act I of 1878 was therefore passed, raising the maximum amount of cess payable on ryotwari holdings in Malabar from one anna in the rupee to two annas in the rupee, the legality of calculating rent-value in Malabar on this method being at the same time affirmed. Another Act (II of 1878)

1878) was passed to prevent certain fraudulent practices in connexion with the salt revenue. Several Bills were passed by the local Legislative Council during the year, but at its close had not yet received the assent of the Governor General. These were the Bill for amending the Ferries Act, the Bill for imposing a licence tax, and the new Madras Municipal Bill. LEGISLATION.

Ten Acts and Bills passed the Bombay Council during 1877-8, of which five received the assent of the Governor General within the year. One of these made vaccination compulsory in the city of Bombay; another related to the Bombay municipality; the third affected the manufacture of spirituous liquor on the Island of Bombay; a fourth was for the amendment of the Ferries Act; a fifth provided for the levy of a licence fee on trades, callings, and industries yielding an income above a certain amount. Among the Bills passed were the Land Revenue Code, the Cotton Frauds Bill, one to amend the *abkari* or excise law of the Presidency, and one to amend the Bombay Municipal Act of 1872. Bombay.

II.

JUSTICE AND POLICE.

CRIME.

RETURNS of the punishments inflicted by the various criminal tribunals throughout British India during 1877 shew that 688 persons were sentenced to death, 2,540 to transportation, 232,333 to imprisonment, of whom 48,838 were also fined. Fines without imprisonment were imposed in 392,645 instances. Whipping was awarded, in addition to other punishment, to 6,203 persons, and, in lieu of other punishment, to 66,447 persons, of whom no less than 28,127 were sentenced by the tribunals in the Madras Presidency, and 11,078 by those in the North-Western Provinces. An explanation of these apparently high figures may be found in the increase of crime consequent on the prevailing scarcity, and the extreme poverty of the prisoners, who were in many cases unable to pay a fine, however small in amount.

Bengal.

In the interior of Bengal there were 108,989 cases of cognisable (*i.e.*, in which the police can arrest without a warrant) crime reported by the police during 1877, against 117,559 in 1876, the decrease being in part the result of the orders of Government prohibiting the wholesale institution of prosecutions for bad livelihood, and in part the result of a change in the instructions for the classification of cases. One of the most satisfactory features in the provincial returns was the sustained decrease in dacoity, there being only 138 cases against 154 in 1876 and 254 in 1875. The police were generally unsuccessful in the investigation of minor dacoities. In the Hazareebagh and Gya districts there was an outbreak of highway robbery. The Mugheya Domes were the only criminal tribe that gave any trouble during the year; they attempted to carry on their robberies among the villages on both sides of the Nepal boundary, but their depredations were promptly suppressed by the local authorities. There was little fluctuation in the number of offences committed in Calcutta and suburbs, the number of cognisable cases reported by the police being 19,526. A large diminution occurred during the year in the number of persons under confinement throughout Bengal. On 1 January there were 21,266 in prison; on 31 December there were only 18,153, the lowest number attained since 1872. Reconvictions were recorded during the year to the number of 4,181, against 3,714 in 1876, and 3,075 in 1875.

Assam.

During 1877 the number of cognisable offences reported by the police in Assam was 10,957, against 10,900 in the previous year. Neither dacoity nor robbery are prevalent crimes in the province. Fifty-six persons were put on their trial for kidnapping, of whom only 18 were convicted. It would appear that the persons kidnapped are generally very young girls, who are taken from their parents or husbands, not for the purpose of prostitution, but for marriage, regular or irregular, and frequently with their own consent. There was an increase of vagrancy cases, but the number is not large; the provisions of the law relating to bad livelihood are, if the district of Sylhet be excluded, but rarely put in force in Assam. The daily average number of convicts in jail was 1,273 in 1877, against 1,383 in 1876. Foreigners amounted to nearly 12 per cent. of the total prisoners, three-quarters of them being imported labourers on tea-gardens. These coolies were convicted chiefly for desertion, and for offences against the person. Only 297 reconvicted prisoners were received into the jails during the year, and only 24 juvenile prisoners under 16 years of age.

N. W. Provinces and Oudh.

An outbreak of lawlessness was the natural sequence of the scarcity that prevailed in the North-Western Provinces and Oudh during 1877. Under the exceptional circumstances cognisable crime largely increased, mostly in thefts of the pettiest description. Altogether 233,812 cognisable offences were reported by the police. Dacoities by organised and professional bands occurred noticeably in the Agra Division, and in the adjoining Aligarh district of the Meerut Division. Vigorous measures were adopted by the authorities to put down the crime, and the gangs were completely broken up, seven of the leaders being shot, while others were captured and hanged. The chief men implicated were Ahirs and Rajputs; the former, members of a thorougly organised tribe,

tribe, always ready for outrage and plunder; the latter, men of a turbulent and lawless clan, whom a long course of extravagance had impoverished. In Oudh, dacoities are rarely committed by professional bands; those that occurred in that province during the year 1877 were mostly due to the abnormal distress, and rarely rose above the level of ordinary grain robberies. There was a large increase in cases of simple hurt, viz., from 17,647 in 1876 to 33,701 in 1877 Cattle thefts numbered 3,116 in the North-Western Provinces and 986 in Oudh. The number of persons sentenced to imprisonment was 53,983 in 1877, as compared with 43,577 in the previous year. CRIME.

The criminal statistics of the Punjab for 1877 were affected by the scarcity which prevailed in some districts, giving rise to a large number of offences against property, and in some places to riots directed against the grain merchants, who took advantage of the scarcity to raise their prices, and in some instances to refuse altogether to sell. Severe sentences repressed the tendency to riot; but isolated offences, due to want, were treated leniently. Murders in the Peshawur district again shewed a decrease. Seven tribes continued to be placed under the operation of the Criminal Tribes Act (XXVII of 1871), the Sansis being the tribe most frequently brought under the rules; during the year 1877 about 514 convictions were obtained against them. In the prisons the convict population for the year was 34,016. The number of juvenile prisoners (under 16 years) was 436, or 1·28 per cent. of the total, 28 being girls. Of the entire male population (32,612) there were 18,237 agriculturists, and of the rest, 968 were domestic servants and 846 Government servants. Of the women prisoners 1,300 were married, 38 unmarried, and 66 were prostitutes. Reconvicted prisoners formed 10 per cent. of the total number. Punjab.

Offences were more numerous in the Central Provinces during 1877 than in the previous year, as might have been expected from the high price of food. Serious offences against the person, and against property, such as dacoities and robberies, increased, as also did minor offences against property, such as theft, housebreaking, and house-trespass; but minor offences against the person and public nuisances decreased. There was a great falling-off in breaches of excise laws. No cases of counterfeiting coin occurred. The total convict population of the prisons rose from 11,475 in 1876 to 11,923 in 1877; of 8,361 new admissions into jail, 7,305 were males and 1,056 females. More than 18 per cent. of the convicts had been previously sentenced. Reconvicted juveniles increased very considerably, being 24 out of 256 convicted, or nearly 10 per cent. Central Provinces.

British Burma, as a whole, compares singularly ill with other provinces of India in respect to the prevalence of crime. A large and continuous increase of crime occurred for some years up to 1876, but the total number of offences reported in 1877 was about the same as the previous year's total, while the convictions were considerably fewer. There was a slight increase in the more serious classes of crime, but petty offences were less numerous. The increase occurred chiefly under the heads of dacoity, robbery, mischief, hurt, theft, and criminal breach of trust. Cases of cattle-theft, housebreaking, and receiving stolen property, on the other hand, decreased in number. The chief diminution was in offences under the Gambling and Excise Acts and in nuisances. With the influx of foreigners into the country, opium-smoking and other vices are increasing among the Burmese. Lotteries, a form of gambling which was coming much into vogue will, it is hoped, be more efficiently checked under new regulations that have been adopted. The number of convicts imprisoned in 1877 was larger than it had ever been before; but releases were very numerous, and the daily average number in jail was less than usual, chiefly owing to the release of 935 prisoners on 1 January 1877. Children under 16 formed 1·02 of the whole prison population. Only 18·96 per cent. of the convicts, in 1877, as compared with 19·33 in 1876, were known to have been previously convicted. British Burma.

Ajmere statistics shew a considerable increase of crime during 1877, due to the dearness of food, which was caused by the scanty rainfall during the latter half of the year, and by the export of grain to the more distressed parts of India. Cognisable crimes shewed the most marked increase under the heads of offences against the Public and Local Nuisances and Cantonment Act, theft, house-trespass, and housebreaking, and dacoity. A slight decrease occurred under offences of grievous hurt, robbery, mischief, criminal breach of trust, Ajmere.

CRIME.

vagrancy, and offences against the Excise and Gambling Acts. There was a marked excess of crime in Ajmere as compared with Mhairwarra, but this is explainable by the preponderance in the former of a town population. Prisoners under confinement increased in number from 968 in 1876 to 1,344 in 1877. Reconvicted prisoners were more numerous than in the previous year.

Berar.

Cognisable offences reported by the police in Berar during 1877 amounted to 10,406, as compared with 9,382 in 1876, the increase occurring in offences against property. The cause of this increase in crime is ascribed to two causes; first, the partial failure of the early rains, which checked the usual growth of weeds in the fields, and thus lessened the usual demand for field labour in the autumn; and second, the rise of prices of grain, due not to any local failure of crops, but to equalisation of prices with those prevailing in less favored parts of the country, brought about by exportation on a very large scale. Formerly the gipsy tribe of Banjaras gave a great deal of trouble to the police; but of late years many bands of Banjaras, whose head quarters are in the Wun District, have ceased to be predatory, and every year the proportion of Banjaras exempted from special police surveillance increases. With regard to convicts, the total jail population rose from 2,940 in 1876, to 3,689 in 1877. The increase consisted almost entirely of convicts sentenced to short terms of imprisonment for petty thefts, which the Resident considers might more suitably have been punished by whipping. Of the whole body of prisoners, 52 per cent. were Hindus, and 16 per cent. Mahomedans. Juvenile prisoners were 94 in number, more than double that of the previous year; and 13 of them were girls.

Mysore.

An enormous increase of crime attended on the distress of the people of Mysore during 1877. The number of cases reported by the police and the number of persons arrested were nearly three times those in 1876, even though crime was steadily increasing throughout that trying year also. The increase was chiefly in offences against property, much of it in the serious forms of dacoity and robbery. There were 196 cases of professional dacoities; the number of persons supposed to be concerned in these was 2,437, while 820 were convicted. In awarding punishments the condition of the people was duly taken into consideration; fines were less often imposed than in 1876, but whipping was inflicted 4,196 times, or at the rate of 13·62 per cent. of the number of persons convicted. There was great overcrowding in the jails, the total prison population of 1877 reaching 54,110, shewing an increase of 237·7 per cent. over the figures for 1876. Hindus formed 81·7 per cent. of the convicts against 75·4 in the previous year, and Mahomedans 6·7, as against 9·5; only 2·6 of the convicts were known to be old offenders.

Coorg.

In Coorg, there were 288 cases of cognisable crime reported during 1877, as compared with 274 in 1876. About 60 per cent. of the persons arrested by the police were prosecuted to conviction; this shews a great improvement on the preceding year. An increase occurred in offences against property, attributable to the scarcity that prevailed; but on the other hand there were fewer cases of breach of contract under Act XIII of 1859, as in consequence of the famine in Mysore the coolies are reported to have come into Coorg more readily during the labour season. The daily average number of convicts rose from 72·41 to 107·66; there were 11 juvenile prisoners in 1877, as against 5 in 1876.

Madras.

Criminal and judicial returns for 1877 shew that the amount of crime in the Madras Presidency was more than double that of 1875, which is the best year to use for purposes of comparison, ordinary averages being entirely disturbed in 1876. Cognisable cases reported by the police numbered 146,140 during 1877. Dacoity increased more than sevenfold; house and field dacoities were the most prevalent forms; highway dacoities were comparatively few, although strings of grain carts were constantly traversing the roads. Out of 1,695 dacoities, 283 were committed by wandering criminal classes; fire arms were used in 68, and swords and spears in 181. In these affairs 54 persons were killed by the dacoits. Dacoits brought into jail were usually in good condition, while thieves were more or less emaciated. There was a large increase of murder cases, and child murder by starving mothers was not infrequent. In housebreaking there was an enormous increase; cattle thefts were very numerous; there were, however, no grain riots during the year. The daily average number of prisoners was 20,678, or 9,752 more than in 1876; while 85,044 prisoners of all classes passed through the jail. Among the convict population, 74 per cent.

cent. were Hindus, and 7 per cent. Mahomedans. The number of convicted juveniles under 16 years of age imprisoned in the Madras Presidency during 1877, was 1,175, of whom 1,033 were boys; and 139 of these boys had been in jail before. CRIME.

A serious increase of crime, particularly noticeable in offences against property, was the inevitable result of the scarcity and high prices prevailing throughout the Bombay Presidency during 1877. Cognisable cases reported by the police numbered 66,091 for that year. The total number of offences of all descriptions reported to have been committed was 85,542, or 18,052 in excess of the aggregate for 1876. Robbery, gang robbery, theft, and receiving stolen property, increased by 97 per cent. The gang robberies were for the most part small grain robberies committed by hungry villagers suffering from poverty and the actual want of food. In the criminal courts the number of persons brought to trial increased by 33 per cent. Punishment by fine alone declined from 54 to 39 per cent. Whipping was inflicted in 7·7 per cent. of the punishments, against 2·5 in 1876. The convict population rose from 29,059 in 1876 to 50,154 in 1877, and a greater number of women and children were imprisoned. Bombay.

Infanticide is a subject to which earnest attention continues to be paid in the North-Western Provinces. A proclaimed Rajput population of about 350,000 living in 2,885 villages, was under surveillance during 1877–8. In England the accepted per-centage of births of girls to total births is 49·32; in the proclaimed villages, during 1877-8, it was 48·78. The percentage of deaths of girls under one year to total deaths under one year was 51·44, as compared with the English rate of 44·62. The English rates shew 10·76 in favour of girls, but in the proclaimed villages the rates for 1877 were 2·88 in favour of boys. The percentages of deaths of each sex under one year, calculated on the births of that sex, or, in other words, on the living population of each sex under one year of age, are for England: boys 17·24, girls 14·27; while in 1877 for the proclaimed villages they were: boys 23·71, girls 26·37. From this test we may be able to gather whether girls are or are not killed in the first year of life. Assuming 23·71 to be a normal death-rate for boys, by applying the English rates we get nearly 20· for girls. The actual figures are 26·37, or a difference of considerably over 6 per cent. This is a great falling-off, as in 1876–7 the difference was only 2·60. If we assume the general death-rate 25· to be correct, we get on the English basis a normal death-rate of 27·31 for boys, and 22·6 for girls. It is, however, in girls over one year of age that the heavy mortality occurs. Whatever the cause may be, whether actual murder, or neglect, or want of proper care, there is no doubt that the girl mortality between one and five years is very excessive. Probably a slight improvement instead of the reverse, would have been seen in the returns for 1877, but for the exceptional character of the year, and the prevailing distress, and insufficiency of food among the proclaimed clans. INFANTICIDE. N. W. Provinces.

From the Bengal report we learn that the working of the benches of magistrates in the interior was on the whole very satisfactory. Two benches of magistrates for the town of Calcutta were formed under the Presidency Magistrates Act, and their administration during the year 1877 was all that could be wished. Arrangements have since been made for an independent bench to sit once a week under the guidance of a chairman elected by the honorary magistrates from among their own number. MAGISTRATES. Bengal.

There were fewer honorary magistrates in Assam during 1877 than in 1876, the number falling from 55 to 46. In the courts over which they presided the results of trials were far from good. They were worst in Sibsagar and Darrang, and best in Goalpara. Assam.

Honorary magistrates disposed of above 14 per cent. of the criminal cases brought to trial in the various courts of the Punjab during 1877. Punjab.

Very material assistance is stated to be rendered to the administration of the Central Provinces in the performance of criminal work by honorary magistrates. The one weakness that some of them shew is a failure to apprehend the gravity of some kinds of offences; and they are apt to inflict fines in cases in which that form of punishment is inappropriate. Generally, however, their work is good, and it is willingly done. During 1877 they dealt with 13,652 out of the 47,505 accused persons brought before the courts. Central Provinces.

MAGISTRATES.

British Burma. With regard to the native magistracy of British Burma, it is remarked that the small number of appeals preferred from their decisions indicates generally the soundness of their work, and perhaps the lightness of the sentences imposed by them, whatever other causes may be assigned for the fact.

Ajmere. In the Ajmere and Mhairwarra districts, 900 cases out of a total of 3,102 were brought before the unpaid subordinate magistrates during 1877. On the whole, the work of the bench of honorary magistrates of Ajmere (town) was not favorably noticed, the attendance of certain of the members being very irregular, while the procedure of others was open to unfavorable criticism. The work performed by the honorary magistrates in the interior of the district was reported to have been well done.

Berar. Eight special or honorary magistrates tried 1,732 persons out of an aggregate of 21,937 brought before the Berar Courts during 1877. Some of these gentlemen also took a share in the work of registering documents, the Registration Act (III of 1877) having been extended to the province.

Madras. During 1877 the number of persons brought to trial before the unpaid magistrates of the Madras Presidency was 12,347, of whom 9,328 were convicted.

Bombay. Only 25 out of 506 local and subordinate magistrates who exercised criminal jurisdiction in the Bombay Presidency during 1877 were unpaid.

POLICE.

Bengal. The gross charge for police in Bengal during the year 1877 amounted to 384,265 *l.*, and the average cost of the purely civil force in the interior was less than 1 *d.* for each inhabitant. Considerable reductions and changes in distribution were undertaken by the Inspector General, and a yearly saving of 16,505 *l.* was made without affecting the real efficiency of the force. The conduct of the police was fair, and if there were here and there isolated instances of gross misconduct, there were also cases of conspicuously good service. Of the inspectors and sub-inspectors more than 98 per cent., of the head constables 85 per cent., and of the constables 37 per cent., could read and write, while a large number of men were under instruction. The general health of the force was not so good as in 1876.

Assam. In Assam, the working of the police force throughout the year 1877 was satisfactory, and the general conduct of the men was on the whole good. Much improvement was effected during the year in the condition of the village police in Sylhet, and the reorganisation of the village police in Goalpara was undertaken. The river patrol system in Sylhet worked well, as also the system of regular police patrol along the Assam Trunk road. Much attention was paid during the year to the discipline and drill of the force, but no attempt was made to form military battalions among the frontier police. Out of a total sanctioned strength of 3,365 men of all ranks, the actual strength of the force amounted to only 2,731.

N. W. Provinces and Oudh. The police departments of the North-Western Provinces and Oudh were amalgamated under one inspector general on 3 March 1877. Considerable divergence in procedure was found to exist; but during the year assimilation proceeded rapidly, and was being nearly completed. Some attention was directed to the general inferiority of the provincial *chaukidari* system in Oudh; and an opinion was expressed by the inspector general that, though the village watchmen reported crime fully, they seldom stirred a finger to aid the regular police in inquiry or detection, and he traced their conduct in this respect to the fact that they were paid by the *zemindars* or landlords and did not look on the local authorities as their masters. It was considered advisable to make any changes in the system as gradually as possible. Endeavours were being made to rearrange the police circles in Oudh, and it was hoped that the redistribution to be effected would admit of more thorough investigation of cases in the provinces.

Punjab. As regards the Punjab police, their working, in 1877, was generally considered good; and on occasions when they were employed on hazardous and difficult duties, such as during the Jowaki expedition, the spirit and discipline of the force were proved to be excellent. The total strength of the police was 20,226, including 10,822 Mahomedans, 6,207 Hindus, and 3,058 Sikhs; while the cost for the year was 304,620 *l.* Among the railway police the dismissal shewed a large increase, and the percentage of resignations was nearly doubled. It is explained that this was owing to the men not being provided with proper shelter.

During

POLICE. Central Provinces.

During the year 1877, the police in the Central Provinces had much to do, and on the whole did their work well. Offences were more numerous, and the influx of bodies of poverty-stricken immigrants into the northern districts added to their duties. In tracing out the perpetrators of dacoities the police shewed much zeal and success. Including the municipal police, the aggregate strength of the force was 8,587 men of all ranks, and the annual cost, 132,709 *l.* In some districts there was an excess of mounted police, who, now that the railway traverses so many districts, and that roads have been opened, are hardly required. A reduction in this body was, therefore, feasible, and it was intended that any money set free by their reduction should, on necessity shewn, be devoted to augmenting the foot force, which in some parts had been represented to the authorities as inadequate. Only one very serious case of misconduct among the police was reported during the year; it was promptly brought to trial and the offenders were punished.

British Burma.

British Burma maintained, during the year 1877, a police force numbering 6,871 men of all ranks, at a cost of 149,567 *l.* As in previous years, the number of men who left the service was very large, being nearly one-third of the whole. The elements of which the force is composed are very various, comprising some nine or ten different races. The want of a well-organised rural police, such as exists in other provinces of India, was beginning to be felt, and measures for remedying it were under consideration. With few exceptions, the police appear to have worked efficiently and well throughout the year.

Ajmere.

Considering the difficulties with which the police of Ajmere and Mhairwarra always have to contend, from the fact of the districts being completely surrounded by foreign territory, and considering more particularly the difficulties of 1877, when for several months the province was hanging on the brink of a severe famine, the Chief Commissioner has stated as his opinion that all was done that could have been expected from a police force so situated. Its sanctioned strength for the year was 582, and the total cost for maintenance was 9,132 *l.*

Berar.

No changes occurred during the year 1877 in the Berar police force, which consisted of 2,678 men of all ranks, and was maintained at a cost of 53,771 *l.* Favorable reports were made of its conduct, equipment, discipline, and supervision. It was hoped that service in the police was getting more popular. Resignations, &c., were fewer than in 1876, and the number of men of over 10 years' service increased from 763 to 925.

Mysore.

In Mysore, during 1877, the efficiency of the police was put to a very severe trial consequent on the enormous increase of crime which attended on the distress of the famine-stricken population. To meet the press of work the force was strengthened, and the siledar horse were employed on patrol duty. With every energy concentrated upon repression of crime, no time could be spared for education in the police schools, nor for instruction and reorganisation of the village police; still the success achieved was not inconsiderable, and the aid given by the village police was favorably mentioned.

Coorg.

A scheme for strengthening and improving the police force in Coorg was sanctioned and carried out during 1877. Good results were at once apparent in its working, as the per-centage of persons convicted to those arrested by the police rose from 36·43 in 1876, to 60·61 in 1877.

Madras.

The heavy strain on the police of the Madras Presidency, which begun in 1876 continued through 1877 with some slight relief towards the close. Government dealt liberally with the police in the way of famine batta, and they believe that the extra labour and exposure were cheerfully accepted. No extra officers of superior grade were employed at any period of the famine; but in the lower grades 15 inspectors and 4,393 men were specially added to the force at different times. Police were furnished to every relief work and relief camp. Thefts of grain from railway station-yards and from trains *en route* became so frequent and daring that it was necessary to supply a large number of police to protect railway premises and to travel with trains. No special railway police force having been established in Madras, the necessity for it became apparent during the famine. Out of the additional force sanctioned from time to time, 1,731 were disbanded by the end of 1877, and the process of reduction was subsequently rapid. Land preventive forces were established in Malabar and South Canara, for the prevention of salt smuggling, under the Excise Act, No. VI of 1871. Improved travelling allowances were granted to police officers above the rank of inspector.

Police. Bombay.

Abnormally heavy work was performed in 1877 by the police of the Bombay Presidency. Exclusive of five commissioners and 28 officers of the highest grades, the strength of the force was 21,648; its cost was 306,262 *l.* to provincial, and 54,866 *l.* to municipal or local revenues. Greatest efficiency in obtaining convictions was shewn by the police of Sind; the police in the Southern and Central divisions stood next; while those of the Northern division, though last, yet had greatly improved since the previous year. As regards discipline, the conduct of the force was not quite so satisfactory as in 1876; although the general average of education was better. A commission was appointed after the famine was over to investigate a systematic plundering of loaded grain wagons along certain sections of the Great Indian Peninsula Railway; and about 40 men belonging to the railway police were prosecuted, and found guilty of complicity, or misconduct in connexion with this special kind of offence.

Prisons. Bengal.

Some difficulty was experienced in Bengal in carrying out the central jail system to its full extent, as although the existing central jails could accommodate more than the number of convicts sentenced to the longer terms of imprisonment, their distribution was such that those situated in the Western Districts were never filled, while the Alipore Jail always had more prisoners than it could properly accommodate. It was therefore decided to convert the Dacca District Jail into a central prison for the Eastern Districts. The number of offences against jail discipline during the year 1877 was greater than in 1876. No less than 27,112 had reference to insufficient task work or petty breaches of rule. Escapes were fewer than in any previous year. A great waste of money in the expenditure of each jail is said to have resulted from the want of efficient central control. Jail manufactures gave the average earnings of each prisoner as 17 rupees; but in some of the jails the results were still very unsatisfactory. At Alipore, the profit from the manufacture department was 14,390 *l.* It was found necessary to make arrangements for conducting the printing business of the Bengal Government at the Presidency Jail. The bulk of the secretariat printing apparatus was transferred there, and employment was at once provided for more than 600 prisoners in the various branches of this industry. During the year arrangements were in train for the establishment of a woollen factory at Bhagulpore, and considerable progress was made in the development of coir manufacture at Midnapore. The health of the prisoners was not so good as in the previous year; but the sickness, though more general, was of a less severe type. Cholera appeared in 29 out of the 48 jails in the Province. The construction of the reformatory building at Alipore was nearly completed during the year. The Reformatory Schools Act has since been extended to Bengal, and about 68 young criminals were placed under confinement in the institution.

Assam.

The state of the jail buildings in the Province of Assam underwent little improvement during 1877, though a considerable sum was expended upon their repairs. A step was made, in the reduction of the Goalpara jail to the condition of a lock-up, towards the policy of abolishing the smaller jails and massing the prison population in large central jails. Considering the insecure state of many of the buildings, there were very few escapes. Much attention was paid to the development of the mark system. There was an improvement in the health of the prisoners, both the percentage of sick on average strength, and the percentage of deaths, being lower than in the preceding year. Manufactures yielded a profit of 1,344 *l.*

N. W. Provinces and Oudh.

With regard to the North-Western Provinces and Oudh, the amalgamation of the two provinces into one government permitted the jails of both to be placed during 1877 under the management of one officer and administered on the same principles. There were altogether 52 jails; of these, seven were central prisons, six being in the North-Western Provinces, and one in Oudh. The remaining 45 were district jails, and of these, 33 were in the North-Western Provinces, and 12 in Oudh. Vital statistics shew that the health of the prisoners was extremely good in spite of the crowded state of the jails. Attention was directed in 1876 to the sickly appearance of many of the boy convicts in the prisons, and efforts were made in 1877 to give them sufficient physical exercise and food; good results followed the issue of these instructions, and there was an evident improvement in the general health of the boy convicts. The financial

results

results of convict labour were extremely good. Carpet manufacture in the Agra central prison yielded a net profit of 5,856 *l.* Prisons.

During 1877 the number of jails in the Punjab was increased to 35 by the completion of the new district jail at Lahore. There were in the province three central jails, three divisional jails, and 29 district jails, besides 18 magisterial lock-ups for under-trial prisoners not admitted to bail. Prison offences were committed during the year to the number of 2,700, and 28 escapes occurred. The age at which the attendance of prisoners at school was compulsory was reduced from 35 to 25 years. Although this will cause a considerable decrease in the per-centage of prisoners attending school, it will avoid the waste of labour in vainly attempting to educate men too old to profit by instruction. From convict manufactures, &c., the net profits for the year were 14,923 *l.* Ninety-seven individuals were confined in the Thaggi School of Industry at the close of the year. The earnings of this institution for the year from the manufacture of tents, its sole industry, amounted to 3,449 *l.*, giving a clear profit of 455 *l.*, which more than covered the outlay on the school. Punjab.

Generally the jails in the Central Provinces contain sufficient accommodation for the convicts confined in them, and though in one instance during 1877 there was some overcrowding, it is not said to have had any injurious effect on the health of the convicts. Out of 2,546 prison offences more than two-thirds related to work. The convicts are said to be well housed, well fed, and well cared for; but it is considered essential that jail life should be made distasteful to them, and that when able they should be made to work hard. The bulk of the prisoners are employed in manufactures, such as oil-pressing, aloe-pounding, stone-breaking, &c., in building and repairing jails, in working in the gardens attached to jails, and as jail servants. On the whole, the health of the prisoners was good, but the per-centage of deaths was higher than in 1876. Central Provinces.

Considering the insecurity of some of the jail buildings in British Burma, there were very few escapes during 1877. Only five prisoners succeeded in making good their escape. Of 21 that actually escaped, 16 were shortly after recaptured. An outbreak that occurred on 29 May 1877 in the Rangoon Jail was got up by two men who had been severely wounded in a similar rising in the Moulmein Jail in 1876. Prison punishments were more numerous than in 1876; and in some of the smaller jails an excessive severity seems to have prevailed, of which due notice was taken by the Government. Less than half of the convicts received into jail were returned as illiterate; and more than one-tenth could read and write well. A considerable number were under instruction throughout the year. Manufactures yielded a profit of 9,342 *l.* The death-rate was 55 per 1,000, against 26 in the previous year, the increased mortality being due mainly to cholera. British Burma.

Compared with the preceding year, there was an increase in the number of prisoners in the Ajmere Jail from 968 to 1,344, which favors the idea that the prison is looked upon as a place of refuge in times of need. The jail was consequently somewhat overcrowded, but so far without any injury to the health of the prisoners. Discipline was well maintained, and the conduct of the prisoners on the whole was good. In the majority of prison offences the punishment inflicted was solitary confinement instead of flogging. Ajmere.

There was no overcrowding during 1877 in the jails of Berar, and the health of their inmates, notwithstanding a great increase in the number, was good, the daily average of sick and the number of deaths being considerably reduced. The conduct of prisoners was generally orderly; offences against jail rules fell from 387 to 256. Nearly two-thirds of the prisoners were employed in manufactures, such as making jail clothing and other articles for prison use, in building and repairing jails, and in working in the gardens. Altogether 7,552 *l.* was expended on the prisons, as compared with 9,676 *l.* in the previous year. Towards the close of the year the administrative charge of the jails was transferred from the Sanitary Commissioner to the Inspector General of Police. A new lock-up was opened at Ellichpur. There are now two central jails at Akola and Amraoti, and four lock-ups at the headquarters of the other districts, all built within 12 years. Berar.

In Mysore the number of jails in 1877 remained the same as in 1876, but the lock-ups increased by one. The prisons were generally overcrowded throughout the year, while the general health of the prisoners was greatly Mysore.

Prisons.

affected by the famine. The number admitted into the hospitals was 6,622, being a daily average sick of 232 prisoners, as against 1,686 and 50 respectively in 1876. Deaths rose in number from 88 to 1,335. Fewer prisoners were under instruction than in 1876.

Coorg.

Out of a daily average strength of 107 in the jails and lock-ups of Coorg during 1877, about 93 convicts were under instruction every day in the jail school. The health of the prisoners was very good, although 18 deaths occurred in the Mercara jail.

Madras.

In the famine districts of the Madras Presidency, during 1877, gangs of half-famished people crowded into the jails, and for all practical purposes the temporary jails became famine relief camps. For this large influx of prisoners (nearly 15,000) additional temporary accommodation had to be provided by means of camp jails and other measures. Another noteworthy fact in connexion with the jails was the great mortality due to the miserable condition of the people on admission. Numbers were admitted in that stage of emaciation from which recovery is impossible under any circumstances. Every care was taken to provide wholesome food, good water, and ample sleeping accommodation; it was impossible, however, to shew anything like the normal death-rate. In 1871 the death-rate per 1,000 was as low as 18·4; in 1876 it was 42·4; but in 1877 it reached no less than 173·7, the total deaths among all classes of prisoners rising from 464 in 1876 to 3,593 in 1877. Considerable attention continued to be bestowed on jail manufactures, both with the view to recoup the cost of the prisoner's custody and maintenance in prison, and to afford the prisoner himself a means of livelihood on leaving jail. The gross expenditure during the year was 232,852 *l.* Upwards of 90 per cent. of convicts received into jail during the year could neither read nor write. It does not appear that education, in the sense of reading and writing, made much progress, but a great deal was done in the way of training prisoners to habits of industry and order by instruction in the common useful handicrafts. Foreign convicts are said to shew great capacity for labour and to be useful in the manufactories. A central reformatory for juvenile offenders, to contain 100 boys, was about to be established in the neighbourhood of Madras. The bulk of the juveniles received into jail during 1877 was composed of starving children who, in the hope of finding food and shelter, committed offences through which they obtained admission into prison.

Bombay.

Altogether there were 148 prisons at the close of 1877 in the Bombay Presidency, 46 subordinate jails having been established during the year. Escapes, especially from gangs working outside prison limits, were more frequent than usual. The health of the prisoners was by no means so good as it was in 1876, which seems to have been an exceptionally healthy year. There were 654 deaths, at the rate of 58 per 1,000, while the average number of sick was 323, against 254 in 1876. A good deal of the sickness arose from the overcrowding of some of the jails, but the impoverished condition of many when first admitted into prison was a cause of the great part of the excessive mortality. Discipline was fairly maintained, the number of punishments not having increased in anything like the same proportion as the number of admissions. More convicts were employed on building and repairing jails, as well as in manufactures. Expenditure on the prisons in the Presidency reached 101,214 *l.* in 1877, an increase of 20,095 *l.* as compared with the previous year. Ninety-five boys were confined in the juvenile prison attached to the district jail of Poona, or more than in any year since the institution was first established. In 1876 there were only 70. It is stated that the workshops in this institution seem to afford the boys a good practical education, particularly in carpentering and blacksmiths' work. At Shirkarpur the number of juvenile delinquents was 28. From a reformatory point of view the arrangement of the premises of this institution is inconvenient, there being only a single room for all the boys.

Civil Justice.
Bengal.

In Bengal, during 1877, the total number of original suits disposed of in all the civil courts, inclusive of the High Court, was 389,277. There were 2,848 regular and special appeals pending before the High Court at the close of the year, shewing the necessity often urged by the local government for providing new machinery for the rapid disposal of civil appeals of this class. At the close of the year there were 11,423 civil and 8,055 revenue appeals pending before

before district judges, and 4,451 appeals pending before subordinate judges. The Small Cause Court of Calcutta decided a larger number of suits of high value than in any previous year. This was the result of the great stimulus given to trade by the scarcity in Southern India. The sudden collapse of trade in the last quarter of the year also produced the same effect, numerous suits being laid for damages on account of failure to ship goods. With regard to the registration department, the extraordinary expansion which its operations have for some time exhibited was specially marked during 1877-8, when the total number of registrations was 550,269, against 465,574 in 1876-7, and nearly double the number effected in 1872-3. Registration was rapidly becoming more popular in Behar. The Mahomedan Marriage Registration Act was in force in 14 districts of Bengal, but had not gained much popularity, while in places it was unpopular. Only 9,390 ceremonies were registered during the year among a Mahomedan population of over ten millions. Civil Justice.

As compared with the figures for 1876, relating to civil business in Assam, there was an increase from 19,429 to 21,282 in the number of suits instituted during 1877, but a marked decrease from 350,538 *l.* to 167,775 *l.* in the value of the amount in litigation. Though the number of registration offices remained unaltered, the number of documents registered rose from 9,004 in 1876-7 to 12,342 in 1877-8. No extension of the rural sub-registry system was in contemplation. Assam.

The civil courts of the North-Western Provinces and Oudh fall into three classes:—(1) The courts of the North-Western Provinces (excepting Kumaun); these are subordinate to the High Court of Allahabad. (2) The courts of the non-regulation division of Kumaun. (3) The courts of Oudh, which are immediately subordinate to the Judicial Commissioner of Oudh. With regard to civil courts subordinate to the High Court, there was a considerable decrease during 1877, as compared with 1876, in the institution of original suits, caused partly by the operation of the new procedure code and limitation Act, and partly also by the circumstance that the districts in which the decrease began and was most conspicuous were those in which the greatest dearth prevailed. There was, however, an increase in the number of appeals, clearly attributable to the unusually heavy number of original suits instituted in 1876. Taken altogether, the original suits and appeals in 1877 numbered 101,420, as compared with 106,197 in the previous year; and the total value of suits and appeals disposed of in 1877 was 2,432,684 *l.*, against 2,225,070 *l.* in 1876. Courts subordinate to the Commissioner of Kumaun shewed an increase in the suits instituted from 4,913 in 1876 to 5,230 in 1877; financially, the working of these courts was satisfactory. With regard to the ordinary civil courts in Oudh, only 34,099 suits were instituted in 1877, shewing a decrease of 1,426 cases on the figures of 1876. Altogether 225,558 documents were registered in the North-Western Provinces and Oudh during 1877-8, the total increase being 31 per cent. compared with the numbers for 1876-7. There were 29,757 more mortgages and 9,890 more sales of immoveable property registered, while the value of property mortgaged and sold rose from 2,502,330 *l.* and 1,624,809 *l.* to 3,072,345 *l.* and 1,994,834 *l.* respectively. As 1876-7 was a normal year, it would seem, therefore, that some 30,000 registered mortgages of the value of 570,000 *l.* and some 10,000 registered sales of the value of 370,000 *l.* were the direct result of the drought and consequent failure of the harvest. N. W. Provinces and Oudh.

Original institutions in the civil courts of the Punjab somewhat diminished in 1877, the decrease being attributed to the scarcity. This was the first year in which the effect of the changes made in the constitution of the civil jurisdiction of the province, relieving Deputy Commissioners by the creation of Judicial Assistants, and relieving *tahsildars* by the creation of *munsifs*, could be fairly observed, and the results were generally satisfactory. Deputy Commissioners have now far more time than before to attend to the due control and working of the revenue system of their several districts. The area of small cause court jurisdiction was restricted by the abolition of the courts at Ludhiana, Simla, and Peshawar. Small cause court jurisdiction is now confined to the large cities where the procedure is popular and effective. Registration returns shew a large increase as compared with 1876-7. In that year the numbers had fallen to a minimum, the figures being lower than in any previous year since the Registration Act came into force. The increase in 1877-8 occurred both in compulsory and optional registrations, the respective numbers rising from 30,931 to Punjab.

CIVIL JUSTICE.

39,895, and 30,150 to 45,057. Plentiful harvests in the previous year had placed agriculturalists, to some extent, above the necessity of borrowing money or of selling or mortgaging their lands. During 1877-8, on the contrary, scarcity and distress prevailed in many districts of the province, especially among the agricultural classes, who were thus thrown, to a large extent, into the hands of the money-lenders, and the number of sale and mortgage deeds and bonds brought to the registry offices in places where the distress was greatest was unusually high; so that the increased activity in registration was not altogether a subject for congratulation.

Central Provinces.

The suits instituted in the civil courts of the Central Provinces during 1877 were 88,486, the highest figure hitherto attained. Except in 1872, there has been a marked yearly increase of litigation since 1862, the increase being attributed to the progressive condition of the country, the increase of population, the accumulation of capital, and the development of trade. Registration operations were rather more numerous in 1877-8 than in either of the preceding years; receipts were also larger, while expenditure diminished. A little more than half the registrations were compulsory; thus, the total registrations of the year were 17,754, of which 9,039 were compulsory and 8,715 optional. Optional registrations are falling off, and as this decline has been continuous for many years, and is not confined to any special districts, it is possible to ascribe the diminution in numbers only to a better knowledge of the law; the people now know what they *must* register, and what they *may* register, and they seem to have arrived at the conclusion that either the inconvenience or expense, or both, attendant on registration, counterbalance the profits derived from the operation. Inconvenience is no doubt felt owing to the paucity of offices; but to increase the offices is at present impossible, for there is no trustworthy agency on which dependence could be placed.

British Burma.

In the civil courts of British Burma 31,715 suits, valued at 302,848 *l.*, were instituted during 1877, the number of suits being $3\frac{1}{2}$ per cent. greater than in 1876, and the aggregate value 6 per cent. higher. There were 37 registration offices open during 1877-8 as in the previous year; 4,091 documents were registered, the value of property to which they related being 577,076 *l.* The increase occurred almost entirely under the head of compulsory registration. As the people are less careful than formerly in recording and registering their affairs, it has been suggested that the method of rural registration which is in use in Bengal should be introduced into British Burma.

Ajmere.

There was a slight decrease in litigation during 1877 in Ajmere; but it is noticeable that even with this diminution the number of suits had increased since 1871 about 34 per cent. On the whole the work of the civil courts of Ajmere and Mhairwarra was fairly conducted, their popularity was maintained, and cheap and speedy justice was administered. During the year 1877-8 the registration rules were revised, and a new office was opened at Deolee, bringing the total number of offices to seven. These offices registered 1,083 documents, or 72 less than in the previous year. The total aggregate value of the property transferred was 37,403 *l.*, against 41,269 *l.* in 1876-7.

Berar.

With the development of the trade of the province litigation increased during 1877 in Berar. There were altogether 21,775 suits instituted, or 438 more than in the previous year, the bulk of them (namely, 82 per cent.) being for money due; the average value of each suit was very nearly 10 *l.* The new Registration Act, III of 1877, was extended to the province, and new rules in accordance with its provisions were duly framed and published. There were 45 offices which registered 13,485 documents, the largest number that came under registration since the creation of the department; 62·5 per cent. of the registrations were compulsory, and 37·5 per cent. optional; both descriptions of registrations were on the increase. Results attained by the experimental introduction in October 1876 of rural registration were generally disappointing.

Mysore.

Frequent recourse to the civil courts has always been a favorite pleasure of well-to-do persons in the province of Mysore. The year 1877, however, was one in which few persons had either leisure or means for such amusement; besides, many courts were closed during several months; consequently the number of suits instituted was only two-thirds of the number in 1876, the falling-off being most conspicuous in tracts where the famine was most severe. On the other hand, there was great activity in the Registration Department,

the

the records of which prove how largely land was sold and mortgaged, especially in the case of small properties. Registration of deeds of sale and mortgages of immoveable property of less than 10 *l.* value increased by 100 per cent. The aggregate value of immoveable property affected by the 17,002 documents registered was 473,024 *l.*, which gives a lower average value than in 1876-7; while the registered documents affecting moveable property were fewer in number and higher in average value. CIVIL JUSTICE.

In the Coorg civil courts 2,299 suits were instituted during 1877, as against 2,022 in the previous year; the value of the property in litigation amounted to 34,773 *l.* Fewer documents were registered during 1877-8 than in 1876-7, the decrease being ascribed by the Inspector of Registration to the decline in the value of coffee estates. Coorg.

The number of suits instituted in 1877 in the Madras High Court on the original side was upwards of 100 in excess of the number instituted in 1876, the increase being mainly due to the impetus given by the famine to the trade in rice and other food grains. The headings under which the increase is chiefly remarkable were "money due on written promise for sum certain," "damages for breaches of contract," "suits to settle partnership and other accounts," and other suits to declare or establish personal rights. Seven of the suits for damages were against railway companies and ships' agents for non-delivery of rice entrusted to them for carriage, and 34 were for breaches of contracts relating to the sale of grain. In the lower courts the total number of suits instituted during 1877 was 189,729, which is less than the average of the six previous years. A very large increase took place in the registration of documents, the number registered in 1877-8 being 289,059, or 38,183 more than in 1876-7. Much of this increase was due to the pressure of the famine which induced the well-to-do classes to pledge or sell their lands. Sales increased by 10,578, and mortgages by 21,567. In some places money-lenders insisted on the registration even of optional documents to a far greater extent than before known. The aggregate value of the transactions of the year was 8,546,724 *l.*, and the value of land sold or mortgaged exhibited an increase of 550,000 *l.* Madras.

There was a considerable decrease during 1877 as compared with 1876 in the number of suits instituted in the civil courts of the Bombay Presidency, more particularly in the case of claims of small amount in the subordinate tribunals of the rural districts. Out of 1,557 suits on the files of the High Court in its ordinary general jurisdiction, 758 were brought before it during the year, and 799 remained in arrears; in its Admiralty jurisdiction, no suits were decided out of seven on the files; 434 insolvency suits were settled out of 1,579. Satisfactory mention was made of the working of the Bombay Small Cause Court, where the number of suits greatly increased, particularly in the case of small claims connected with the grain trade. Of 144,412 suits instituted in the rural districts, 128,261 were for money. A decrease in both civil and revenue suits of small value was noticeable, while suits involving larger sums increased. Taking the civil courts of the rural districts as a whole, the average duration of contested suits was 211 days. Several of the arbitration courts were closed during the famine. None of these courts have been at work for more than a few years; but those at Poona appear to be well constituted, and to have acquired the confidence of litigants in their neighbourhood. In 1877-8, for the first time, the Registration Department shewed an excess of receipts over expenditure, the surplus being 6,987 *l.* There were 90,297 registrations effected during 1877-8, or 18·22 per cent. more than in the previous year. Optional registrations increased by about 40 per cent. The value of property affected by instruments registered was stated to be 4,513,605 *l.*, as compared with 3,653,781 *l.* in 1876-7. Bombay.

III.

FINANCE.

Revenue and Expenditure. India.

According to the Finance and Revenue Accounts for the official year ending 31 March 1878, the total amount of the "imperial" revenue, both ordinary and from "productive public works," was 58,969,301 *l.* For the preceding year the amount was 55,995,785 *l.*; the increase in the receipts was therefore 2,973,516 *l.* Excluding capital outlay on "productive public works," the total "imperial" expenditure both in India and in England amounted during 1877-8 to 62,512,388 *l.*, as compared with 58,178,563 *l.* in 1876-7, the increase in the expenditure being 4,333,825 *l.* The deficiency in revenue for 1877-8 was 3,543,087 *l.* As in the previous year, the deficiency was entirely due to the heavy charges for famine relief entailed on the Government. During the quinquennial period ending with the year 1877-8, the deficiency in the imperial revenue was 5,545,391 *l.*; the expenditure on famine relief during this period was 14,102,293 *l.*; excluding famine charges, the surplus of revenue for the five years would have been 8,556,902 *l.* With regard to the several sources of revenue, the following are the total receipts during 1877-8, under the principal heads, in order of their importance: land, 20,026,036 *l.*; opium, 9,182,722 *l.*; salt, 6,460,082 *l.*; stamps, 2,993,483 *l.*; customs, 2,622,296 *l.*; excise, 2,457,075 *l.*; while under "productive public works," 495,142 *l.* was credited to irrigation, 548,528 *l.* to State railways, and 6,129,765 *l.* to guaranteed railways. Turning to the expenditure side of the account, we find that the total of the direct claims and demands upon the revenues, including charges of collection and cost of salt and opium, was 10,013,736 *l.*; the army cost 16,639,761 *l.*; "productive public works" are debited with 791,601 *l.* for working and maintenance, and 6,572,955 *l.* for interest and surplus profits; "ordinary public works" entailed an expenditure of 3,676,274 *l.*; famine relief cost 5,345,775 *l.*; interest on debt and obligations amounted to 5,028,318 *l.* As regards the outlay of capital on "productive public works," the total amount for the year 1877-8 was 4,791,052 *l.*

Bengal.

Imperial receipts in Bengal amounted during 1877-8 to 17,055,273 *l.*, as compared with 16,006,392 *l.* in the previous year. The increase was general, but especially noticeable in the case of the opium, customs, stamps and salt revenue collections. Most satisfactory results were seen to have been gained by the extension of the provincial services scheme. Receipts under the chief heads of revenue were largely increased, while unnecessary expenditure was cut down, and the money thus saved was devoted to improving those branches of the administration which most required an increased outlay, to public works of general or local utility, to the advance of education, the reform of prisons, and other similar objects which had for some years past been obliged to stand over for want of funds.

Assam.

Assam has enjoyed an increasing revenue for some years. Imperial collections rose from 568,405 *l.* in 1876-7 to 632,943 *l.* in 1877-8, and the expenditure from 380,510 *l.* to 391,916 *l.* At the close of the official year all the local funds were solvent, the aggregate balance being about 19,000 *l.*

N. W. Provinces and Oudh.

For the North-Western Provinces and Oudh the respective amounts of imperial revenue collected in 1877-8 were 5,498,642 *l.* and 1,609,085 *l.*, and of expenditure 2,237,938 *l.* and 570,422 *l.* With regard to provincial finance, the final balance of the united provinces at the close of 1877-8 amounted to nearly 300,000 *l.*, forming a safe reserve for unforeseen or extraordinary charges.

Punjab.

In the Punjab the gross amount of the imperial revenue collections declined from 3,837,599 *l.* in 1876-7 to 3,050,470 *l.* in 1877-8, while the expenditure advanced from 1,945,858 *l.* to 2,011,471 *l.* It should be pointed out that the decrease of revenue was solely caused by transference of the salt receipts from the accounts of the local to those of the Supreme Government. In 1876-7 these receipts amounted to 830,172 *l.*

Central Provinces.

As compared with the amount for 1876-7, the imperial revenue collections in the Central Provinces during 1877-8 shewed a slight fall from 1,104,138 *l.* to 1,078,662 *l.*, while the expenditure decreased from 769,568 *l.* to 743,188 *l.*

In

In British Burma the gross collections of imperial revenue increased from 1,771,743 *l.* in 1876-7 to 1,847,147 *l.* in 1877-8, and there was a rise in the expenditure from 896,508 *l.* to 944,243 *l.* The falling-off in the receipts was due to uncollected arrears of land revenue. REVENUE AND EXPENDITURE. British Burma.

A further decline occurred during 1877-8 in the yearly amount contributed by the Madras Presidency to the imperial exchequer. The decrease of revenue and the increase of expenditure were continuous for three years. In 1874-5 the total collections amounted to 8,373,826 *l.*; in 1877-8 they were only 6,986,438 *l.*; while the expenditure, which in 1874-5 was 5,897,554 *l.*, had risen in 1877-8 to no less than 10,622,517 *l.* This complete derangement of the finances was caused by the succession of bad harvests followed by a terrible famine. All the chief heads of revenue shewed a diminution since 1874-5, but the decline in the aggregate receipts is mostly owing to the decrease under the head of land. Famine relief during 1877-8 absorbed 4,363,671 *l.* of the total annual expenditnre. Madras.

Revenue collections on imperial account in the Bombay Presidency advanced from 10,076,974 *l.* in 1876-7 to 10,393,992 *l.* in 1877-8, and there was an increase in the total expenditure from 8,146,545 *l.* to 8,512,925 *l.* Of the latter amount 965,146 *l.* was for famine relief. Bombay.

Opium cultivation in the Behar and Benares Opium Agencies was very profitable in 1877-8. The total amount of revenue realised was 6,432,881 *l.*, as compared with 6,174,170 *l.* in the previous year; and the number of chests sold by auction in Calcutta was 49,500, or 2,260 more than in 1876-7. In the Benares Agency there was some tendency on the part of the cultivators to sow in excess of their engagements, and the clause in the licence which legalised such excess sowing was consequently cancelled. The purchase of Nepal opium at a price uniform with that paid to cultivators in British territory was sanctioned during the year. Poppy cultivation would seem to be on the increase in the Nepal Terai. The question of the export of opium from Nepal through British territory, under passes granted to traders by the Government of the Punjab, was subsequently taken into consideration. Excise is one of the principal branches of revenue which were transferred to provincial management from the beginning of the year. The revenue derived from it advanced from 624,781 *l.* in 1876-7, to 686,789 *l.* in 1877-8. This improvement was partly due to careful administration, and partly to the substitution of the out-still for the central distillery system in tracts to which the latter was inapplicable. The raising of the duty on *ganja*, and the enhanced price of opium, also contributed to produce an increase of revenue. At the same time the restrictions, both direct and indirect, on the consumption of intoxicating drugs and liquors, were made more stringent. OPIUM AND EXCISE. Bengal.

Excise revenue collections in Assam rose from 144,637 *l.* in 1876-7 to 162,566 *l.* in 1877-8. The system of putting up to auction the licences for retailing opium was introduced into all the districts of the province at the beginning of the year with favorable results. While there was a general falling-off in the consumption of the drug, and in the number of shops for its retail, there was a considerable increase in the revenue. From all other sources also, besides opium and its preparations, the gross excise revenue increased. The bulk of this increase was contributed by country spirits and *ganja*, and is attributable to the further extension during the year of the farming system. Assam.

Excise receipts from opium and spirits yielded during 1877-8 in the North-Western Provinces 214,880 *l.*, and in Oudh 69,114 *l.* Both these amounts were smaller than those of the previous year. More than half the receipts were from still-head duty. N. W. Provinces and Oudh.

In the Punjab the excise collections advanced from 103,868 *l.* in 1876-7 to 104,377 *l.* in 1877-8. More than two-fifths of the revenue is derived from monopolies for the sale of intoxicating drugs, including opium; next come licence fees for the retail of spirits; still-head duty yields a quarter of the revenue. Punjab.

The total excise collections in the Central Provinces during 1877-8 amounted to 147,240 *l.*, and were derived from an excise on country spirits, on opium, on *tari* and *ganja*, and miscellaneous income, such as fines, &c. That there is a great demand for opium among the population is proved by the number of licences for sale of the drug. During 1877-8 the bids for licences greatly Central Provinces.

Opium and Excise.

exceeded the total revenue realised in 1870-1. *Ganja* smoking is very common, and in almost every village a few plants are cultivated in each inclosure. The taste for this drug is quite distinct from the taste for liquor, and the classes which smoke *ganja* and those which consume liquor are quite distinct. An attempt has been made to put down all unauthorised cultivation, and measures have been taken to place everything connected with this branch of the excise under Government control.

British Burma.

Realisations of excise revenue in British Burma continued their steady increase during 1877-8, when they amounted to 176,078 *l.* Opium yielded about two-thirds of the aggregate receipts.

Ajmere.

Excise receipts in the Ajmere and Mhairwarra Districts were somewhat less in 1877-8 than in the previous year. The sale of opium was free and unfettered by any rules, but it was in contemplation to extend the Opium Act to the districts.

Berar.

About 10,000 *l.* a year is realised from the excise on spirits and drugs in Berar. Since the close of 1877-8 the entire cultivation of poppy and the export of opium from Berar have been prohibited in the interests of the opium revenue of the province, and because it was feared that much smuggling went on, which injured the excise revenue of the Central Provinces. A new set of rules for the import and sale of the drug, and for a careful control of the internal opium trade, was under preparation.

Mysore.

Spirits and drugs yielded a revenue of about 100,000 *l.* in Mysore during 1877-8. The amount has declined during two years, owing to the diminished consumption, especially of liquors, among the famine-stricken population.

Coorg.

Almost the whole of the excise receipts in Coorg are obtained from the still-head duty. The total *abkari* revenue of the province amounted in 1877-8 to nearly 15,000 *l.*

Madras.

Only 471,069 *l.* was realised from excise in the Madras Presidency during 1877-8, against 558,369 *l.* in 1876-7, and 633,901 *l.* in 1875-6. Of the decrease of 25 per cent. which appeared as compared with 1875-6, about two-thirds was likely to be recovered. In the provinces 346,873 *l.* was realised against 442,683 *l.* in the previous year, and an estimated revenue of 527,500 *l.* In some cases the renters were permitted to pay duty on actual issues irrespective of the sum guaranteed. In others the renters actually failed, and when their farms were resold this was done at a loss. In Madras itself the *abkari* revenue was greater than in any preceding year, being 124,196 *l.*, against an average of 116,000 *l.* The increased consumption of liquor resulted partly from the increased wages earned in the grain trade, and partly from the increase of population caused by labourers and others coming in from the districts. In 1875-6 certain restrictions were placed on the brewing of country beer. Breweries existed before that on the Nilgiris and in Bellary, but the brewers, who were practically unfettered, flooded the market with an unwholesome liquor nominally called beer, but in reality a mere spirit-wash waste containing an undue proportion of alcohol and little or no barley malt. It was considered in 1875-6 that beer could not be brewed successfully on the plains; and it was therefore resolved to restrict the manufacture to the Nilgiris, and to require that the materials used in brewing should consist of malt prepared from barley only, hop, and a limited quantity of sugar, the alcoholic strength being fixed at 8 per cent., and the duty being raised from one to four annas per gallon. These measures formed the subject of much complaint, especially the prohibition in regard to the use of malt other than barley malt. It was afterwards resolved to modify them by reducing the duty to the original rate of one anna per gallon, and by putting the maximum alcoholic strength at 6½ per cent.

Bombay.

There was a falling-off of about 200,000 *l.* in the opium revenue of the Bombay Presidency during 1877-8, as compared with the year before. The actual receipts fell from 2,948,290 *l.* to 2,749,841 *l.* China took 6,347 fewer chests than in 1876-7. The crop was comparatively a poor one, and prices rose, on account of both natural and artificial scantiness of supply in the market. A new Act, regulating the sale of opium, came into force at the close of the year; but during 1877-8 the retail sale of the drug for home consumption was conducted under the provisions of the former law of 1827. The administration of the excise revenue in the Bombay Presidency was, towards the end of 1877-8, placed by legislation on a better footing, and it was expected that the system settled by Bombay Act I of 1878 for the town and island of Bombay, would

would be found to work harmoniously with the system settled by Act V of 1878 for the rural districts. Excise receipts declined from 428,812 *l.* in 1876-7 to 405,530 *l.* in 1877-8; but the decrease was mainly due to transactions in excise opium, a large adjustment of which was made in the former year. Opium and Excise.

Salt revenue collections for the whole of British India rose from 6,304,658 *l.* in 1876-7 to 6,460,082 *l.* in 1877-8. During a period of ten years the amount has averaged 6,110,257 *l.* Progress was made towards the ultimate assimilation of the Indian salt duties. The Salt Act (XVIII of 1877), which came into force on 28 December 1877, raised the duty on salt imported into the Presidencies of Madras and Bombay (including Sind) from *Rs.* 1. 13. to *Rs.* 2. 8. per maund of 82$\frac{2}{7}$ lb. avoirdupois. A notification of 28 December 1877 (Customs, No. 172), issued under the Indian Tariff Act, 1875, reduced from 1 January 1878 the duty on salt imported into Bengal (Lower Provinces) from *Rs.* 3. 4., to *Rs.* 3. 2.* Another notification of 28 December 1877 (Salt, No. 255), issued under the Inland Customs Act, 1875, reduced the duty on salt imported into Upper India from *Rs.* 3. to *Rs.* 2. 12. per maund.† Salt.

Receipts from salt in Bengal rose from 2,596,956 *l.* in 1876-7 to 2,693,601 *l.* in 1877-8. Clearances of salt for consumption were greater than in the previous year. As the general prices in 1877-8 were high, the increased consumption bears strong testimony to the prosperity of the agricultural classes. The most marked increase was in Behar, where the average consumption of the population rose to nearly the same standard as that of Bengal generally, being upwards of 10 lbs. per head, after making all allowances for export beyond the province. This seems to shew that even in Behar, where the condition of the cultivators is comparatively impoverished, the profits arising from the sale of their crops at abnormal rates did to some extent reach the agricultural classes and remain with them. Manufacture of excise salt declined from 407,975 maunds to 170,986 maunds, owing to the inability of the Orissa manufacturers to compete with Ganjam salt; but this was only a temporary depression, and relief subsequently given by raising the duty on Ganjam salt, and paying the cost of a preventive establishment at Pooree, has revived the trade. Bengal.

Salt excise in British Burma yielded 14,603 *l.* in 1876-7, and decreased to 11,767 *l.* in 1877-8. Revenue from locally-made salt continues to dwindle down before the importations of foreign salt. The quantity made in Arakan is used for purely local domestic purposes, and for export to fish-curing districts. In the Pegu division it is used extensively for fish-curing, and its production is stimulated or otherwise by the success or failure of each particular year's fishery operations. British Burma.

In the Madras Presidency the salt revenue during 1877-8 amounted to 1,142,186 *l.*, against 1,291,953 *l.* in 1876-7, and 1,353,789 *l.* in 1875-6. For the purposes however of comparing the results of the three years, it is necessary to add 160,000 *l.* to the figures of 1877-8; this sum representing the value of salt purchased on deposit of Government securities outstanding at the close of the year under advances recoverable, and adjusted by a deduction from revenue under the orders of the Government of India. Again, owing to the salt consumed in Malabar and South Canara now paying duty in Bombay, the bulk of the salt revenue of those districts no longer appears as a credit of the Madras Presidency. Due allowance being made for these items it appears that the salt revenue of 1877-8 was in excess even of that of 1875-6. The causes of the excess were partly the additional duty levied under Act XVIII of 1877 at the end of December of that year, and partly the abolition of the discount system under which merchants buying an entire heap of salt were allowed to purchase at 95 per cent. of the supposed contents; the latter being an important reform recommended by the recent Salt Commission and carried out during the year. Amounts sold diminished in Chingleput, Kistna, and Madura, and on the West Coast, the diminution being attributable respectively to shortness of stocks, to increased supply of the Nizam's dominions by Madras.

* Further reduced, from 1 August 1878, to *Rs.* 2. 14., by notification of 31 July 1878 (Customs, No. 100).

† Further reduced, from 1 August 1878, to *Rs.* 2. 8., by notification of 31 July 1878 (Salt, No. 226).

SALT. by rail from Bombay, to increased supply of the southern districts by rail from Tuticorin, and to the cessation of sales on account of Government. Amounts sold rose in Vizagapatam, Nellore, and Tinnevelly, the increase being due respectively to increased trade with parts of the Central Provinces, to shortness of stocks in Chingleput, and to increased sales for transport by rail into the southern districts. The salt department was in 1877–8 placed under a Commissioner, subordinate to the Board of Revenue but independent of collectors. The control of collectors over the manufacture and sale of salt ceased a little later, on 1 July 1878.

Bombay. The principal events during 1877–8, in connexion with the salt revenue department of the Bombay Presidency, were the raising from 28 December 1877 of the duty on each Indian maund of salt by 11 annas, and the abolition from 1 January 1878 of the railway mileage duties. Although the increased duty was levied only for three months of the year, yet the revenue from the actual salt tax was enhanced by about 100,000*l.* In 1876–7 the collections from all sources of salt revenue amounted to 930,441 *l.*; in 1877–8 they were 1,128,274 *l.* Cambay salt works were closed during the year, so that the consumption of crystalised salt was likely to increase in Gujarat. Kharagora salt occupies an annually increasing market, especially in the direction of Central India and the Central Provinces.

PANDHRI. *Pandhri* is a tax on traders and artisans in the Central Provinces. It was
Central Provinces. a well-known impost under Maratha rule, and has been continued by the British Government. During 1877–8 the tax was more productive than in former years, and the number of persons assessed was also slightly greater. Altogether 21,356 persons were taxed, and the total demand was 16,286*l.*, of which 15,792 *l.* was realised.

STAMPS. Stamps under the General Stamp Act and the Court Fees Act yielded
India. a revenue of 2,993,483 *l.* for the whole of British India during 1877–8, as compared with 2,838,628 *l.* in 1876–7. The average revenue for the decennial period ending with 1877–8 was 2,640,690 *l.*

Bengal. More than a third of the entire stamp revenue of British India during 1877–8 was contributed by Bengal, where the collections amounted to 1,081,452*l.*, as compared with 954,788 *l.* in the previous year. The greater portion of the increase in Bengal was due to the operations under the Land Registration Act; but apart from this there was a general increase under all heads, attributable to the greater activity of trade.

Assam. The stamp revenue of Assam during 1877–8 amounted to 55,709 *l.*, or 5,795 *l.* in excess of the average for the three previous years. Improvement took place in the sales of both revenue and judicial stamps, while better measures were adopted to prevent evasions of the stamp law.

N. W. Provinces and Oudh. Realisations from stamps in the North-Western Provinces during 1877–8 amounted to 378,342 *l.*, the average for 10 years being 347,914 *l.* More revenue stamps were sold than in any previous year, in consequence of the unusual number of loans and mortgages contracted during the period of distress. Since 1869–70 *hundi* (bill of exchange) stamps have been greatly displaced by the use of currency notes and money orders for remittances, and in some measure by the increasing tendency to settle transactions by ready money payments or bills payable on demand. Increased facilities were afforded to the public for the sale of stamps. In Oudh there was a rise in the stamp revenue from 94,372 *l.* in 1876–7 to 101,115 *l.* in 1877–8.

Punjab. Under the head of stamps, the revenue collections in the Punjab for 1877–8 amounted to 274,162 *l.*, against 245,586 *l.* in the previous year. Every source of stamp revenue contributed to the increase, which has proved continuous.

Central Provinces. A larger revenue was obtained during 1877–8 from stamps in the Central Provinces than during any former year. The collections rose from 97,614 *l.* in 1876–7 to 103,518 *l.* in 1877–8. Trade was brisk, and the sale of general stamps consequently increased, while the large amount of litigation caused a corresponding sale of court fee stamps.

British Burma. As compared with those of 1876–7, the receipts of 1877–8 from judicial and revenue stamps in British Burma shewed a very great improvement, rising from 62,992 *l.* to 70,220 *l.*

Ajmere. In Ajmere there was an increase during 1877–8 in the sales of general stamps, but a heavy falling off in those of court fee stamps, due to the decline in litiga-

tion

tion throughout the districts. The total stamp revenue is given in the Administration Report as 15,735 *l.* in 1876-7, and 14,429 *l.* in 1877-8. STAMPS.

Sales of stamps in Berar shew a yearly progressive increase. The total amount contributed by them towards the provincial revenue in 1877-8 was 51,419 *l.*, as compared with 44,762 *l.* in 1876-7. Berar.

A falling off in the total stamp revenue of Mysore from 50,725 *l.* in 1876-7 to 49,687 *l.* was principally due to lessened receipts from court fee stamps. Litigation was temporarily suspended on account of the impoverished condition of the people. Mysore.

Fewer transactions involving the purchase of stamps occurred during 1877-8 in Coorg than during the previous year, and the revenue from this source consequently declined from 2,430 *l.* to 2,019 *l.* Coorg.

In the Madras Presidency stamps yielded 501,971 *l.* in 1875-6, 499,336 *l.* in 1876-7, and 489,221 *l.* in 1877-8. The revenue from court fee stamps in 1877-8 shewed a falling off of 20,000 *l.* compared with the reduced revenue of the previous year; but on the other hand general stamps yielded 10,000 *l.* more. These results were owing to the impoverishment of the people, which caused on the one side a decrease of litigation and on the other an increase in the number of property transfers. Madras.

Only 416,272 *l.* was realised from stamps in the Bombay Presidency during 1877-8, as compared with 440,066 *l.* in the previous year, and with an average of 482,084 *l.* for the ten years ending with 1877-8. Bombay.

The District Cess Act (X of 1871) was in force in all the districts of Bengal except the Chittagong Hill Tracts, Sonthal Pergunnahs, and Singbhoom, where there are special local reasons which have rendered the introduction of the measure undesirable. The rate of cess was not the same in all districts; in seven districts it was half the maximum rate fixed by law, in two districts it was three-fourths, and in the remaining 28 districts the maximum rate of half-an-anna in the rupee was levied. Returns for the year ending 30 September 1877 shew that the demand on account of land cess was 286,551 *l.*, while the collections amounted to 250,491 *l.* As regards the cess on houses, the total demand was 19,410 *l.*, and the collections were 14,068 *l.* As the house cess is not suited to the circumstances of the country, its abolition was contemplated, all collections on account of it having been meanwhile suspended. BENGAL ROAD CESS.

The Provincial Public Works Cess Act (II of 1877) came into force in June 1877 in all the districts in which the District Road Cess Act was in operation. The rate of taxation was half-an-anna in the rupee. According to the original estimate, the contribution to be paid to the Government of India on account of interest on capital expenditure on public works in the province was 257,500 *l.*; but it was subsequently fixed at 200,000 *l.* for the year 1877-8. Receipts under the Act up to 31 March 1878 amounted to 210,504 *l.* BENGAL PUBLIC WORKS CESS.

IV.

LAND ADMINISTRATION.

SURVEY OF INDIA. ON 1 January 1878, the Great Trigonometrical, the Topographical, and the Revenue Branches of the Survey Department were amalgamated into the "Survey of India." The time had come for the fusion of the three branches of the survey into a single department, because each branch had in great measure completed its own special work, and because for the future survey officers and survey parties would often have to be transferred from one kind of survey work to another. The amalgamation of the three departments was attended with some reduction of expenditure.

The several descriptions of survey that are being conducted under the Government of India are, (I) the Great Trigonometrical Survey, which fixes stations by great triangles and astronomical observations, and thus furnishes the basis on which all surveys of interior details and all geographical material rest; (II) the Topographical Survey, which delineates the features of the country and furnishes material for maps of all tracts in British and native territories, where detailed survey for revenue purposes is not required; (III) the Revenue Survey, which furnishes for revenue purposes, either village maps on a scale of four inches to a mile, or cadastral (field) maps on a scale of 16 and 32 inches to a mile.

Besides these several descriptions of survey, there are, under the Surveyor General of India, officers and parties employed on geodetic observations, on tidal observations, and on exploration surveys beyond the frontiers of British India; and there are also great map-drawing and map-producing establishments at Calcutta and at Dehra Dún.

During the year 1877–8, there were employed five survey parties on triangulation; 12 on topographical work; and 12 on revenue survey work. Of the 12 parties last-mentioned, four parties were engaged on village (four inches to the mile) surveys; while eight were employed on cadastral (16 and 32 inches to the mile) surveys. The cadastral surveys were begun only in the year 1871; but for purposes of the people, and also for revenue purposes, in the thickly peopled parts of India, they are extremely useful. The cost of these field surveys is, however, considerably larger than the cost of the other surveys. Thus, the average cost of the topographical survey for several years back has been about 2 *l.* per square mile; of the village survey about 5 *l.*; and of the field (cadastral) survey about 16 *l.* The costliness of the cadastral survey varies inversely as the size of the field to be surveyed; and it has in special tracts cost 30 *l.* to 40 *l.* a mile.

The triangulation parties during the year 1877–8 effected some difficult and intricate work in the Tanjore district, among the channels of the Cauvery. They laid down correctly the position of important points at the mouth of the Irrawaddy and of the upper islands of the Mergui Archipelago, advanced the Indian triangulation 148 miles, and fixed important points on the Siam border. They settled a large number of new points in Baluchistan, about the Bolan Pass, Quetta, and Khelat. They extended our geographical knowledge into hitherto unknown land round the upper waters of the Brahmaputra; and shewed that, of the great affluents of that river at the northern head of the Assam Valley, the Dihong river has twice to three times the volume of the Subansiri, which had previously been regarded as the possible continuation of the great river of Tibet. On the Burma and Assam frontiers the officers of the survey had to encounter much difficulty and some risk from the unhealthiness of the forests.

The area for which final topography was completed by the twelve topographical parties amounted to 25,118 square miles, of which 10,540 were in the Bombay Presidency, 4,612 in the Central India States, 4,281 in Assam, 2,325 in Mysore, 1,870 in the North-Western Provinces, and 1,490 in Rajputana and in the Simla hills. In Central India and Rajputana the drought of 1877 impeded the work of the survey, as the surveyors could not work in the waterless deserts. In Mysore severe fever greatly crippled the surveyors during the

the whole of the field season. The Garhwal party penetrated into the trans-Himalayan valleys of Hundes; and fixed peaks near the head waters of the Sutlej and the Indus, and near the western sources of the Ganges. Colonel Depree's adaptation of Lieutenant Leach's plan for drawing contour maps appears to have been very successful, in that it enables native surveyors, unskilled in hill drawing, to turn out hill maps with contour lines faithfully delineated. SURVEY OF INDIA.

The four revenue survey parties engaged on village survey completed 5,611 square miles of country in the trans-Indus districts, in Sirsa, in Saharanpur, and in Budaon. The first party did specially useful work in triangulating 350 square miles of the Jowaki country during the campaign of 1877-8. In the districts of Bannu, Dera Ismail Khan, and Sirsa the demarcation work was well forward and accurately done by the Settlement Department. Without a good and punctually executed village boundary demarcation, revenue survey parties cannot work either rapidly or economically. The permanence of the trijunction platforms erected many years before in Saharanpur and Budaon materially facilitated the survey operations in those districts.

Of the eight cadastral survey parties, the small party in the Agra and Hamirpur Districts were engaged solely in revising and completing the cadastral record; the small Assam party were employed in surveying revenue-free lands in Kamrup; the Jaunpur party only began work in the district late in the year, and consequently completed but little (only 150 square miles of) field survey; while the Cuttack irrigation and the Chota Nagpore parties were not working full strength. The whole area completed cadastrally by these eight parties during the year was 1,572 square miles, besides a small area of uncultivated land which was surveyed topographically. The largest area was done by the survey party in Banda, which had been engaged on cadastral work for a series of years; this party was employed in a district where village boundaries were fully and properly demarcated, and where the average size of fields exceeded one acre. In Jaunpur also the boundary demarcations were done punctually, and the trijunction marks of the old demarcation were standing.

The cadastral survey in Khurda has been extraordinarily costly. A 32-inch survey must necessarily be dearer than a 16-inch survey; but the expenditure has been enhanced by the imperfections of the demarcation work done by the Settlement Department. Twelve annas per acre is a prohibitive rate for cadastral surveys in a tract like Khurda. The outturn and cost in the Soane irrigation tract, where the fields are as small as in Khurda, would seem to shew that the great outlay in Khurda must have been partly due to inefficient demarcation. The Burkagarh survey in Chota Nagpur and the Cuttack irrigation work (where the fields were even smaller than in Khurda) appears also to have been impeded by delays in demarcation. Permanent boundary-marks were being erected in all the cadastrally surveyed tracts of Bengal. The absence of such marks in past years has very greatly detracted from the permanent usefulness of the revenue surveys previously executed in Bengal.

Levelling operations by revenue survey parties appear to have been confined to the Banda and Budaon Districts.

There was much activity in the several establishments, where maps are prepared and published from the hand-drawn maps furnished by the field parties. Fair progress was made with the new map of India on the 32 miles to an inch scale; and 11 more quarter-sheets of the Indian Atlas were published. The production of cadastral survey maps was expedited. The photographic and lithographic branches of the Calcutta Office were well and efficiently managed. Besides turning out its ordinary work, the Great Trigonometrical Office at Dehra met the wants of the frontier army by producing in one week a new edition of the Afghanistan map, several hundreds of which were distributed to the forces. The work done by the map-drawing and publishing offices amounted to 481,031 copies of maps, plans, and diagrams struck off during the year, including 162,913 by the Lithographic Office, Calcutta; 296,329 by the Photozincographic Office and otherwise for the cadastral survey, and 21,789 by the great Trigonometrical Office at Dehra. The issues of maps, which are apart from the copies of cadastral and other survey results supplied to local officers, were 20,869 in number, and 3,090 *l.* in value. Maps sold to the public realised only 782 *l.* during the year. The main work of the survey is thus for the different

SURVEY OF INDIA.

administrative departments of the State; and its maps are, as yet, little utilised by the outside public.

MADRAS REVENUE SURVEY.

During 1877-8 the Madras Revenue Survey Department carried on operations in Ganjam, Godavari, Kurnool, Bellary, Cuddapah, North Arcot, South Arcot, Salem, the Nilgiri Hills, Coimbatore, Madura, and Malabar. The total area of the Presidency is estimated at 141,133 square miles; of this 47,360 square miles had been surveyed on the cadastral scale of 16 inches to a mile, and 40,007 square miles on smaller scales suitable to the production of topographical maps. According to the programme, the cadastral survey would extend over a further area of 11,822 square miles. The expenditure during 1877-8 was higher than usual, but a considerable portion of it went to paying survey officials employed on famine relief duty.

BOMBAY REVENUE SURVEY.

With regard to the Bombay Revenue Survey, the drain upon survey establishments, in common with others, caused by the necessity of having numerous inspecting officers accustomed to revenue work in the famine districts, prevented the operations of the department during the year 1877-8 from being as extensive as usual. Considering, however, the comparatively small number of survey parties available, the outturn of work was most satisfactory. In Sind, where the operations were not disturbed by famine, the work of classification made great progress. Altogether there were 35 field establishments employed during the year, and they were spread over the Poona and Nasik, Ratnagiri, and Gujarat districts, the Southern Mahratta country, Sind, and certain Native States. The operations comprised the measurement of 1,826,209 acres, the classification of 1,538,414 acres, and the settlement of 598,578 acres. The total cost was 76,722 *l.*, of which sum 6,017 *l.* was recoverable from the Native States of Sawant Wari, Bhor, and Kolhapur.

STATISTICAL SURVEY.

At the close of June 1878 the number of volumes published of the Statistical Survey of India amounted to 78. These volumes contained 25,440 pages, and represented about four-fifths of the entire work. Six more volumes have been subsequently issued. The Bombay statistical accounts will not be completed till 1881, and those for the North-Western Provinces and the Madras Presidency till a still later date.

LAND REVENUE AND SETTLEMENTS.

According to the Finance and Revenue Accounts the total amount of land revenue collected in British India during each of the three years 1875-6, 1876-7, and 1877-8 was respectively, 21,503,742 *l.*, 19,857,152 *l.*, and 20,026,036 *l.*, and the average for the 10 years ending with 1877-8, was 20,722,765 *l.* As compared with the previous year, there was during 1877-8 an increase in the collections in Bengal, Assam, Madras, and Bombay, but a decrease in those in the North-Western Provinces, Oudh, Punjab, and the Central Provinces.

Bengal.

In Bengal the number of estates on the revenue roll in 1877-8 rose from 142,528 to 146,380, mainly on account of the numerous partitions of estates which took place in Behar. The current demand amounted to 3,689,597 *l.*, as compared with 3,673,724 *l.* in the previous year; and 94·34 of the total demand was collected. According to the Finance and Revenue Accounts, the collections were 3,663,559 *l.* in 1876-7, and 3,696,210 *l.* in 1877-8. During the year 1877-8 733 settlements were effected, yielding a net increase of revenue of 4,322 *l.*; while 11,187 settlements, involving a revenue of 97,708 *l.*, were pending at its close. Settlement work throughout the Province was much facilitated by the passing of the Bengal Act III. of 1878, which lays down a procedure to be followed for bringing the under tenants and ryots to an early decision with respect to the settlement officer's rates, and giving *à priori* validity to these until they are set aside by a decree of court.

Assam.

During 1877-8 progress was made in Assam in the resettlement of *ilam* estates in Sylhet, the resettlement of other petty scattered estates in that district, the resettlement of the Jaintia Pergunnahs, the settlement of waste lands in Cachar, the resettlement of the Eastern Duars in Goalpara, petty resettlements in that district, and the ordinary annual settlements in Assam proper. A completion was made of the resettlement of the Eastern Duars; the system adopted was that of direct settlement with the cultivator; and this has

has been approved by the Government of India in the case of three out of five of the Duars. Ordinary annual settlements in Assam proper resulted in an increase of revenue of 7,209 *l.* over the revenue of the previous year. This increase was due to the extension of cultivation. On account of ordinary land revenue the current demand was 315,045 *l.*, against 303,099 *l.* for 1876-7. Miscellaneous land revenue also shewed an increase on the current demand, mainly under the head of Elephants, Fisheries, and House Tax. The aggregate land revenue collections for the Province rose from 329,637 *l.* in 1876-7 to 362,972 *l.* in 1877-8. LAND REVENUE AND SETTLEMENTS.

Revision of assessments up to the close of 1877-8 resulted in a net increase of 451,315 *l.* to the revenue of the North-Western Provinces, of which 12,257 *l.* represents the increase obtained in 1877-8. In Oudh the assessments made at the regular settlement of certain villages of the Sitapur District were revised, and the revised settlement of the entire district was afterwards formally sanctioned. Formal sanction was also accorded to the revised settlements concluded in previous years of the Rae Bareli, Sultanpur and Bahraich Districts; these settlements, having effect for 30 years from the dates on which they were introduced, were after the close of the year confirmed. In the Kheri and Fyzabad Districts alone were regular settlement operations in progress. The current demand on account of land revenue in the North-Western Provinces during 1877-8 was 4,255,328 *l.*, of which 4,222,085 *l.* was realised. According to the Finance and Revenue Accounts, the land revenue collections in the North-Western Provinces amounted in 1876-7 to 4,298,908 *l.*, and in 1877-8 to 4,063,647 *l.*; while in Oudh the respective amounts were 1,403,843 *l.*, and 1,283,112 *l.* N. W. Provinces and Oudh.

Settlements of land revenue in the Punjab were approaching completion during 1877-8. The assessments have been accepted by the people in most cases willingly, while full advantage has been taken of the peculiar circumstances of border villages exposed to attack from independent tribes to insist in the settlement papers, and in the rates of assessment upon those obligations of service in border defence which the Government desires to maintain on the frontier. Under the head of land revenue there is but little to notice; the demand increased by about 10,000 *l.* on account of the revision of assessments in the Bannu District; while the collections fell below those of previous years from the necessary suspension of the demand in Gurgaon and Karnal, owing to the extreme drought, which not only injured the crops, but caused great mortality among the cattle, for which no pasturage was available. The collections in 1876-7 amounted to 2,005,814 *l.*, and in 1877-8 to 1,993,174 *l.* At the close of 1877-8, the total area of land in the Punjab and its dependencies, of which the revenue was assigned to individuals and institutions, was 5,204,919 acres, on which the assessment was 293,954 *l.* Punjab.

Some fourteen villages in the Chanda District of the Central Provinces were settled on a ryotwari tenure during 1877-8. As the land revenue of these Provinces is practically fixed for a term of years, variations in it are very slight. During 1876-7 the collections were 604,419 *l.*; during 1877-8 they were 601,955 *l.* Everywhere the Government demand was realised without difficulty. Central Provinces.

In British Burma the area of land under settlement leases for fixed periods amounted in 1877-8 to only 465,868 acres, or 23,200 acres less than in the previous year. The greater portion of the land under settlement leases in Arakan reverted to Government in 1878-9, when the period of settlement expired. In Pegu renewals of expired leases will only be granted after the professional survey work has been completed in the districts concerned. Land under settlement leases in Amherst and Toungoo reverted to Government at the end of 1878-9, and that in Tavoy will revert in 1884-5. Realisations from land revenue, capitation tax, land assessments in lieu of capitation tax, fisheries, and miscellaneous items, aggregated 785,648 *l.* in 1877-8, against 835,376 *l.* in 1876-7; this decrease of 49,728 *l.* was due to a large portion of the demands of the current year not having been realised at its close, and to heavier remissions in 1877-8. Extensive remissions of land revenue were rendered necessary by the damage to crops from inundations in the deltaic districts. British Burma.

Realisations of land revenue in the Ajmere and Mhairwarra Districts during 1877-8 amounted to 31,931 *l.*, leaving a balance of 1,189 *l.* uncollected. Almost all Ajmere.

LAND REVENUE AND SETTLEMENTS.

all the suspensions were granted in Ajmere, where the scarcity and want of rain was more severely felt than in Mhairwarra. Notwithstanding these drawbacks, the revenue was collected without difficulty, and no severe coercive measures were anywhere required.

Berar. In Berar the assessment of integral waste villages was completed during 1877-8, and the labours of the survey and settlement department were concluded. Land revenue receipts advanced from 613,387 *l.* in 1876-7 to 616,348 *l.* in 1877-8.

Mysore. The revenue settlement was introduced during 1877 into four *taluks* of Mysore, bringing the number under settlement up to 26½. Settlement of *inams*, though seriously impeded by the transference of officers to famine duty, made appreciable progress. Realisations of land revenue rose from 643,569 *l.* in 1876-7 to 727,065 *l.* in 1877-8. Arrears of land revenue amounted at the close of the year to no less than 573,553 *l.*, the cause being the impoverishment of the people during a long period of scarcity.

Coorg. The demand on account of land revenue in Coorg rose from 39,149 *l.* in 1876-7 to 39,489 *l.* in 1877-8, the increase being principally under the heads of wet and dry land assessment and coffee assessment. Under the former the increase was chiefly owing to the reduction in the number of remissions, but some waste lands were also brought under cultivation by the ryots, who were stimulated to do so by the prevailing high price of food grains. The increase in coffee assessments was principally due to a difference found upon survey between actual and recorded area of estates.

Madras. For the official year ending 31 March 1878 the collections on account of land revenue in the Madras Presidency amounted to 3,494,884 *l.*, against 3,296,575 *l.* in 1876-7, 4,545,013 *l.* in 1875-6, and 4,693,469 *l.* in 1872-3. The decrease, as compared with 1872-3, is therefore 1,198,585 *l.* Not one bad season, but a succession of bad seasons, had grievously affected the circumstances of the ryots. Owing to the suspension of coercive measures in consequence of the famine, the outstanding arrears at the close of the year were very heavy, but much of the amount has since been collected. The settlement of the Tinnevelly and Nellore Districts was finished during 1877-8 by the Revenue Settlement Department. Some of the settlement officers were lent to famine relief.

Bombay. Land revenue collections in the Bombay Presidency rose from 3,344,664 *l.* in 1876-7 to 3,662,346 *l.* in 1877-8. The increase was due partly to fewer remissions, especially in Sind, partly to larger receipts under miscellaneous headings, and still more to the large arrears left outstanding on account of the famine at the end of the previous year. Alienated land revenue (that is the assessed value of land, the proprietary right in which has been parted with by Government) was 661,859 *l.*, as compared with 665,086 *l.* Great caution was exercised in realising the assessments of the year, as well as the previous year's arrears, the collection of which had been temporarily suspended. Distraints were more numerous; but the increase was chiefly due to operations in a single collectorate, where the landholders resolutely withheld payment of the usual instalments. Over 400,000 *l.* was left outstanding at the close of the year; but a great part of this was likely to be ultimately recovered. Settlement operations were carried on during the year in several districts.

WASTE LANDS.

By waste land is implied land which the Survey Department have assessed as arable, but which is not for the present taken up by anyone for cultivation.

Assam. As regards waste lands in Assam, 161 leases, covering an area of 71,646 acres, were sold during 1877-8, against 63 leases comprising 24,414 acres in the preceding year. It is plain that the new lease rules have allowed full scope for the extension of the tea industry of the province. In Cachar the planters still seemed to prefer taking up the land they required for extending their operations under the ordinary settlement rules in vogue in the district, an area of over 20,000 acres having been thus taken up during 1877-8. The desire to avoid competition at auction, which may necessitate a large initial expenditure in purchasing the land, appears to be the principal cause of this preference for the ordinary ryotwari title. In two cases only, one in Nowgong and the other in Lakhimpur, was there any competition at the auction sale, and the result of this competition was that the two leases sold for 70 *l.* more than what they would have fetched at the usual fixed upset price of one rupee per acre.

In

In Saharanpur, the only district in the North-Western Provinces in which waste lands were disposed of during 1877-8, two pieces of land, with an aggregate area of 689 acres, were sold for 200 *l.* No waste lands were sold in Oudh during the year. A balance of 1,160 *l.* remained due to the Government on account of lands sold in previous years in the Kheri district. WASTE LANDS. N. W. Provinces and Oudh.

Orders permitting the breaking-up of waste lands in the Central Provinces, and suspending the rules regarding the alienation of the proprietary right in Government lands, continued in force during 1877-8. It is stated that the scheme for colonising the Charwa waste lands, so far as it contemplated the establishment of villages of cultivators under their own leaders, failed. Most of the persons who were located on the tract were driven from their native villages by poverty, and were not really cultivators. Even those of the settlers who were cultivators were not of the substantial class of ryots whom it was desired to attract to the lands; they were settled there in opposition to the principles laid down in the rules for the guidance of officers in carrying out the scheme; there were, however, grounds for anticipating that the other part of the scheme, namely, the settlement of blocks of land by single colonists of capital and energy, might eventually prove successful. Two blocks had already been allotted, and other applications had been received. Central Provinces.

In British Burma during 1877-8 there were 45,816 acres of waste land granted by district officers for paddy and other cultivation under the local revenue rules. Of the 20 waste land grants in the Rangoon District remaining to be re-surveyed, 17 were being dealt with during the year by an officer of the local survey department. British Burma.

Lands have been granted in Berar under the waste land sale rules only in Wun, Basim, and the Melghat tract in the Ellichpur district. Owing to the liberality of rules framed some years ago, a large number of villages in the Wun district were leased out on terms not favorable to the interests of Government, and further prejudiced by a concession that admits of the lessees obtaining an undeserved proprietary status. The question of a remedy for the evil has since been under consideration. Berar.

At the end of 1876-7 the available extent of culturable waste land in Mysore was 2,710,376 acres; 150,815 other acres were resigned during the year, while 86,036 acres were taken up for cultivation and building sites, the balance at the close of 1877-8 being 2,775,155 acres. Mysore.

Waste lands to the extent of 491 acres were taken up in Coorg during 1877-8 for cultivation in food grains, only 67 acres being resigned during the year. About 1,000 acres of coffee land were planted. Coorg.

With regard to waste lands in the Bombay Presidency, it may be stated in a general way that, except in the districts of Khandesh and the Panch Mahals, land not already in occupation, is of inferior quality, or inconveniently situated with reference to water supply or communications. In Sind the available area is not clearly ascertained, and in almost every part of the province depends entirely upon artificial irrigation or the inundation of the Indus. In the surveyed districts of the rest of the Presidency the arable area returned as still available in 1877-8 for cultivation was 2,238,272 acres, or less than in the previous year by 72,733 acres. Bombay.

With regard to the properties under the management of the Court of Wards in Bengal, the number of estates administered by Government officers was 440 at the close of the year 1877-8. These properties included wards' estates managed under Bengal Act IV of 1870, estates of lunatics placed under the charge of the collector by order of a civil court, estates of minors similarly made over to the collector, and a large number of attached estates. WARDS' ESTATES. Bengal.

Estates under the management of the Court of Wards in Assam were three in number during 1877-8, as in the previous year. None of these properties were of much value. Assam.

On 30 September 1877 there were 97 estates, as against 90 on 30 September 1876, under the superintendence of the Court of Wards in the North-Western Provinces. These estates were scattered over all the districts of the Provinces except Garhwal, and comprised the entirety of or shares in 3,224 villages, yielding a rental of 240,000 *l.* and paying 122,500 *l.* to Government on account of land revenue cesses and *patwari* rate. The general question of making loans from the surplus funds of one estate to another estate under the N. W. Provinces and Oudh.

WARDS' ESTATES. Court engaged the attention of Government. It was decided that in ordinary cases the terms on which such loans might be made should be those of the open market. In Oudh 76 estates with an annual gross rental of 356,117 *l.*, and assessed to a land revenue demand for 195,418 *l.*, were under management, either on behalf of the Court of Wards, or with reference to the special provisions of the Oudh Talukdars Relief Act (XXIV of 1870). Up to the close of the year State loans aggregating 244,646 *l.* had been sanctioned for estates of the last-named class. The progress made in disencumbering the estates in charge was generally satisfactory.

Punjab. In the Punjab during 1877-8, as in the previous year, forty estates were under the management of the Court of Wards, and their total income was 45,377 *l.*, chiefly derived from landed property; while the total expenditure amounted to 35,581 *l.*, of which 1,908 *l.* was expended in the education of the wards.

Central Provinces. Thirty-two estates were under the Court of Wards in the Central Provinces at the end of 1876-7, and three were brought under the Court during the year 1877-8, while two were made over to wards on their attaining their majority. At the close of 1877-8, therefore, there were under the Court 33 estates, comprising 631 villages, with a total area of 646,120 acres. The annual revenue of the estates was 58,086 *l.*, and the expenditure 34,367 *l.*

British Burma, Berar, Mysore, Coorg. No estates in either of the provinces of British Burma, Berar, Mysore, or Coorg, were under the superintendence of the Court of Wards during the year 1877-8.

Ajmere. Management of estates under the Court of Wards in the Ajmere and Mhairwarra districts involves heavy work, which during 1877-8 was considerably increased. Of the various estates under management the income was 9,003 *l.*

Madras. According to the accounts of the Madras Court of Wards for the *fasli* year ending 30 June 1877, the most important of the estates under the Court's management was Ramnad, in the Madura district, with a gross annual revenue of nearly 80,000 *l.* Parla Kimedi, in Ganjam, stood next, with a revenue of 37,500 *l.* Ettiapuram, in Tinnevelly, had 27,500 *l.*, and Salur, in Vizagapatam, 10,000 *l.* Three of the other estates had a revenue of between 5,000 *l.* and 10,000 *l.*, and 14 had over 1,000 *l.* and below 5,000 *l.* The estate that suffered the most in consequence of the recent famine was Ramnad. Its gross revenue in the year ending 30 June 1877 was only 45,000 *l.* The extent of actual cultivation in all the estates, so far as could be ascertained, was 599,577 acres against 670,642 acres in the previous year. The total debts due to the estates at end of the year were only 20,190 *l.*, while those due by them amounted to 163,258 *l.*, and of the latter, 136,780 *l.* belonged to Ramnad. The outlay on agricultural and other works was 24,039 *l.* against 21,730 *l.* in the previous year. A great portion of the former sum was spent on irrigation works undertaken in Ramnad as famine relief works. The demarcation of the boundaries of villages in Ramnad was sanctioned as a preliminary to field survey, which will be undertaken hereafter. An experimental farm was established in the Ettiapuram estate at the request of the minor *zemindar*, and the demarcation and survey operations in that estate were completed with satisfactory results, the increase in the area cultivated being 7,910 acres, and the increase of revenue 1,118 *l.* The educational progress of the wards, with two or three exceptions, was good, and their conduct throughout excellent.

Bombay. Collectors in the Bombay Presidency were during 1877-8 in charge of 121 estates during the minority of their occupants. Of these estates the receipts were 19,677 *l.*, and the balance at the end of the year was 33,676 *l.*, of which 18,170 *l.* was invested in Government of India securities. The financial position of the *talukdars* or landlords of Gujarat, and the *zemindars* of Sind, had been so deeply insolvent for many years that legislation was taken to provide for the administration of their property; but the Act relating to Sind was so recently brought into operation that its effects could scarcely yet be appreciated. In Ahmedabad and Broach the official administration of the estates of indebted landlords was successful in diminishing considerably the load of debt; but so little improvement took place in the character and habits of the indebted classes, that in several instances applications were made for the benefit of the Act by persons whose estates had already once been handed back to them free from debt.

V.

AGRICULTURE.

In 1877-8 the mean rainfall of the whole province of Bengal was 58·87 inches, which may be regarded as a fair average. Harvests were on the whole good, but very high prices prevailed, owing to the large quantity of grain exported to the famine-stricken provinces of Madras and Bombay. The rise in prices was a source of gain to the cultivators and to those who shared in their profits, but caused some distress among people dependent on small fixed incomes or on charity, and also probably among day labourers in places where the unusual amount of export did not lead to an additional demand for labour. In consequence of the permanent settlement there is no official agency for the collection of statistical information regarding the actual areas under cultivation in the province with the different kinds of crops. SEASONS AND CROPS. Bengal.

The year 1877-8 was on the whole a favorable one to the agricultural classes in Assam. In some districts, owing to an unseasonable rainfall, the early rice crop partially failed; but this partial failure was counterbalanced by the abundant yield of the later crop. In the aggregate both these crops gave a fair outturn, and the yield of the other crops, such as jute, mustard, sugarcane, pulse, &c., was not below the average. The rainfall during the year was somewhat unequally distributed. In the Brahmapootra Valley it was below, while in the Surma Valley and in the Hill districts it was above the usual amount. The general condition of the people throughout the year appears to have been prosperous. High prices of food grains were the result of extraneous circumstances. With regard to the area under cultivation, rainy-season crops occupied 2,895,749 acres, of which 2,096,389 were under rice, 186,908 under tea, 127,218 under fibres, and 35,580 under potatoes. Dry season crops occupied 1,261,179 acres, of which 871,584 were under rice. Assam.

A severe drought afflicted the North-Western Provinces and Oudh during 1877-8, accompanied by a serious failure of the crops over a great part of the country. This failure, following immediately on a period when exportation of grain to the famine districts in Southern India had been unusually brisk and had drained the hoarded stores of food, led, as was to be expected, to great scarcity, especially of the coarser grains, and produced considerable distress among all classes of the people. The rainfall of 1877 was peculiarly capricious and abnormal. From January to April, when but little is usually needed, there was an excessive downfall, which damaged very considerably the spring crop in the fields, and rendered useless a large amount of grain stored all over the country in the village threshing floors. From April to December, when every drop is precious, the heavens were almost as brass. The total year's fall averaged about 20·3 inches all over the North-Western Provinces and Oudh, and of this only one-half fell during the rainy season proper. Of crops cultivated by means of irrigation, the aggregate area was 1,461,428 acres, of which rice occupied 221,670, cotton 105,309, indigo and other dyes 210,349, wheat 415,659, other food-grains 262,867, sugar 139,374, opium 10,072, and other drugs 1,154. N. W. Provinces and Oudh.

The unseasonable weather during 1877-8 caused considerable injury to the crops in many districts of the Punjab. From the failure of the summer rains the autumn crop was in many districts destroyed, and prices rose to an exceptionally high rate, while general fears of famine prevailed. However, a very heavy fall of rain late in the year came in time to save the country from famine, and an unusually large breadth of land was sown for the winter crop, which in the Punjab comprises most of the more important food grains. Unseasonable weather again prevented the promise of a large crop being realised, and the spring harvest was probably not above the average. The total area of the spring crop was 12,393,917 acres, of which wheat occupied 6,983,904, barley 2,114,547, grain 1,898,421, poppy 12,424, tobacco 78,390, oilseeds 689,828, tea 10,046, and sugarcane 43,253. The autumn crop aggregated 6,627,572 acres, of which cotton occupied 656,609, indigo 106,956, sugarcane 340,161, tobacco 2,165, rice 403,387, while the remainder, about 5,000,000 acres, was cultivated almost entirely with other food-grains and pulses. Punjab.

SEASONS AND CROPS.

Central Provinces.

In the Central Provinces the year 1877-8 was one of considerable anxiety and difficulty to the people, and towards its close there were apprehensions of scarcity in several parts of the country. Fortunately this was tided over, and the plentiful rainfall of 1878 brought with it relief from anxiety. The general character of the year may be said to be heavy falls of rain followed by long breaks, with further heavy falls in the usually rainless months. There were estimated to be 15,744,594 acres under cultivation during the year; rice occupied the largest area, namely, four and a-half millions of acres, wheat came next with three and a-half millions, and other food grains occupied over five millions Oil-seeds, cotton, and sugarcane were the next in importance.

British Burma.

In British Burma the hot season of 1877 was unusually protracted, and towards its close inconvenience was caused by a drought of water. The rain set in about the end of May, and continued into November; the rainfall was exceptionally heavy, and the rise of the Irriwaddy was high. Extensive floods ensued in various parts of Pegu and Tenasserim, and the crops suffered somewhat in consequence. At Sandoway 242 inches of rain was registered. The lightest rainfall was only 49 inches at Prome. The average of all the stations where records are kept was 141 inches. During 1877-8 there were 2,951,265 acres of land under cultivation, an increase of four per cent. on the previous year. Of the whole area about 86 per cent. was under rice cultivation; the harvest was abundant, notwithstanding much damage done by floods; for late rain enabled a great part of the loss to be repaired by fresh planting. Only about 30 per cent. of the acreage yielded cotton, tobacco, sugarcane, and other produce, the *rabi* or cold weather crops of India being almost unknown in British Burma. Experiments were made with tea and coffee planting, but with little result; for although in some parts of the province the soil and climate are no doubt favorable, the difficulty of obtaining labour has hitherto proved insuperable.

Ajmere.

In the Ajmere and Mhairwarra districts the year 1877-8 was one of drought and high prices; the *rabi* or spring crop was probably above the average; but the *kharif* or autumn harvest failed entirely, except in lands irrigated from deep wells or along the banks of large nullahs. However, there was never any sign of stocks running short. The cotton crop was excellent in many parts, but the pods are said to have been small and the cotton short in grain. Only 8·73 inches of rainfall were recorded for the whole district, as against 25·9 in the previous year. No statistics have been given of the actual areas under cultivation with different crops.

Berar.

In Berar the chief feature of the year 1877-8 was not a deficient aggregate rainfall, but an insufficient fall in the months in which it was particularly needed. Crops were cultivated on 6,470,307 acres. Jowari (the greater millet) occupied 2,604,812 acres, or about 40 per cent. of the whole area under cultivation. Cotton came next with 32 per cent., namely, 2,078,273 acres. Of jowari, the staple produce of the province, the harvest was splendid in the Morsi and Northern Talukas; it failed in the Amraoti and Pusad Talukas, but elsewhere it was an average one. In respect to wheat, the outturn of the 524,456 acres planted with that cereal was little more than one-half the average. Gram totally failed, owing to the seed having been eaten in pods by insects. Oil-seeds gave only a moderate crop. The yield of cotton was much above the average. Tobacco was cultivated on 17,064 acres, opium on 1,858, and lac on 65,157.

Mysore.

In Mysore the average rainfall during 1877 was 35·92 inches against 16·74 inches in 1876. During the year the great famine which had been growing in intensity since the monsoon of 1875 reached its height. Early in the season good and almost general rain fell, but the prospect of a good monsoon and a plentiful harvest was not fulfilled. June, July, and August were rainless, but on 1 September the rain came copiously; and agricultural operations were at once begun. Extensive sowings were made for the late paddy harvest. The rain, however, which continued till the end of October, was too heavy for some crops, especially in the Nagar Division, where jowari is very extensively grown; the excessive moisture when the crops were coming into ear caused the grain to rot and sprout as it stood. In this way fields of the most promising and luxuriant corn were damaged beyond all hope of recovery. Vast flights of locusts during the last months of the year added to the calamities of the season. The total production of the year 1877-8 was nearly half an average crop. In the

the previous year the production was rather more than one-third, and in 1875-6 it was nearly two-thirds of an average crop. According to the returns the aggregate areas of the various crops amounted to 4,384,766 acres, of which rice held 539,138, wheat 11,008, other food-grains 3,374,370, oil-seeds 129,895, cotton 14,410, tobacco 18,324, coffee 128,438, cocoanut and arecanut 120,658, pepper 7,000, and lac 171. SEASONS AND CROPS.

In Coorg the rainfall registered at Mercara during 1877 was 110·85 inches, or 3·90 inches more than in the previous year. The temperature was a little lower than in 1876, but the season was extremely feverish and unhealthy. Rice, which occupied 72,684 acres, is the staple crop of the province; the cultivation of other grains is insignificant. The rice crop of 1877-8 was exceptionally plentiful. Cardamoms also did well, and the crop, which engaged 273 acres, realised a high price. Owing to the long drought before the rains set in, the coffee berries did not form properly, and the crop, which occupied 45,150 acres, was poor and small. Many estates suffered from the ravages of the borer insect. Coorg.

The peculiarities of the year 1877 in the Madras Presidency as regards climate were: first, the intensity of the sun's heat during the early months of the year; secondly, a cyclonic storm on 20 May, giving in the south-eastern coast districts a plentiful, and in the neighbourhood of Madras a copious, downpour of rain; thirdly, a delayed south-west monsoon, with breaks so prolonged that in many of the districts depending on the early rains the early crops either failed or were greatly delayed on account of the deficient moisture; fourthly, a very copious and general rainfall in September and October, lasting till the arrival of the usual season of the north-east monsoon; and fifthly, violent storms and floods in the southern districts of Tanjore, Tinnevelly, and Madura during the north-east monsoon, with partial or complete failure of the north-east rains in the coast districts north of Nellore. The rainfall of 1877 was remarkable more for the peculiarity of its distribution than for actual deficiency. Madras.

Taking the official year 1877-8, the outturn of crops in all districts was about two-thirds of an average crop. Considerable damage was done by locusts in many districts. The locusts appeared in immense swarms, and made for the time a complete devastation of the fields. Collectors were authorised to incur any necessary expenditure for the destruction of the locusts, but the special measures adopted had little effect. In Tanjore, Trichinopoly, Madura and Tinnevelly, the crops were much injured by excessive rains in the north-east monsoon. Coimbatore and Salem suffered to some extent from the same cause. The crops in the remaining districts failed from drought. South Canara was the only district in which the outturn was satisfactory, and even there the second rice crop was injured by insects. The aggregate area of the different crops cultivated in the Presidency was 19,592,617 acres, of which wheat held 15,916, rice 4,584,935, other food-grains 10,618,733, pulses 1,552,190, orchard and garden produce 526,624, tobacco 59,069, tea 3,160, coffee 58,988, cinchona 2,011, condiments and spices 144,938, potatoes 2,714, sugars (cane, palm, date, and others) 53,895, oilseeds 824,759, indigo 117,401, and cotton 967,665.

In the Bombay Presidency during 1877 the rainfall in Sind, Gujarat, the Konkan, and along the Ghats was deficient, particularly in July, which is usually the wettest month. In Gujarat and Sind there was practically no rain in August. In the Deccan excessive rain fell in June; but in July and August there was a considerable deficiency. In September and October the fall was excessive in the south, and average in the Northern Deccan. October was also unusually wet in Gujarat, the Konkan, and on the Ghat range. In addition to these fluctuations from the normal rainfall, the temperature was extraordinarily high, and the air drier than usual at the time immediately following the sowing of the early crops. The total area under food-grains during 1877-8 was 14,212,498 acres, or more than 81 per cent. of the whole area cultivated, namely, 18,160,095 acres; 68 per cent. of the grain grown consisted of the greater and lesser millet (jowari and bajri). Rice occupied the next largest acreage (1,414,394 acres), and then wheat (1,080,414 acres). Pulses were grown on 1,235,698 acres; and oilseeds, now becoming, like wheat and rice, an important article of export, covered 911,073 acres. Cotton was grown on 1,477,020 acres, indigo on 17,704, and tobacco on 40,702. Bombay.

FAMINE IN SOUTHERN INDIA.

The following particulars are given of the scarcity in Southern India that began in 1876, and continued to affect the Province of Mysore and the Madras and Bombay Presidencies during the greater part of 1877-8.

The summer rains (south-west monsoon) of 1876 were extremely scanty over tracts belonging to the Presidencies of Madras and Bombay, to the State of Hyderabad, and to the Province of Mysore. Over these tracts, which contain a population of about 26 millions, the summer rains yield the main rainfall of the year; they fill the irrigation tanks, and on them depends the safety of the main food crops. In the above-mentioned districts, therefore, the chief food crops of 1876 failed by reason of the shortness of the summer rains. But in the rest of the Madras country the main rainfall comes with the October rains (north-east monsoon); these rains were also very deficient, and so the irrigation tanks of the Madras districts remained dry, and the chief food crops failed. The fate of the Madras crops was thus partially in doubt until the middle of November. Failure of the crops of a single year might not have caused a famine if it had been confined to only one province or to a few districts; for inter-communication, by railway and by road, is easy and cheap all over Southern India, and the surplus of one province would have supplied the deficiency of another. But in 1876 the area of failure was so vast that famine prices were inevitable; and by the month of December food-grains in the markets of Southern India were three times as dear as in ordinary years. The calamity pressed with special weight on some of the stricken districts (notably Bellary, Sholapore, parts of the Carnatic, and of Mysore), because the crops of one, or even two, preceding years, had been short. In such districts food stocks were lower than usual, and the people had less money to buy food brought from a distance. In Bengal, Burma, Central and Northern India, the crops were happily good; food stocks were large; and there was plenty of grain to supply the stricken districts, if it could be carried thither, and if the people could afford to pay for it. In the autumn of 1876, no general instructions were issued by the Government of India for the management of serious and widespread famine; nor until November was it certain, from the reports received by the Supreme Government, that positive famine was impending in the Madras districts. From the month of September 1876, a large importation of grain from Northern India and Bengal into the distressed tracts began; and this traffic rapidly increased till, in the month of December, grain was landed by sea at Madras, and was also consigned by railway, from the west, through Raichore (the westernmost limit of the Madras Railway), in much larger quantities than the railways could distribute, to the districts of the Madras Presidency and of the Mysore Province. From December private traders kept consigning, month by month, into the interior of the famine districts more grain than the railways from Madras, Beypore, Negapatam, and Raichore were able to carry. This grain came from Bengal, Burma, the Punjab, the North-Western Provinces, Central India, and Sind. Government did much to facilitate the traffic; and on one occasion only was there any interference with private trade, namely, when 30,000 tons of grain were bought by the Madras Government at the beginning of the famine, and were carried into the interior of the country. To this extent the railway and cart power of the country was temporarily occupied by Government to the exclusion of private trade. Prices continued dear; but it was not till nearly the end of July 1877, that the first reports were received that food could not be had in the bazaars by those who could afford to pay for it. In some of the worst districts the imported food sufficed for the needs of about one-third of the total population. The remaining two-thirds in such districts, and a much larger proportion in the less severely afflicted tracts, subsisted on old stocks and on the yield of the petty crops that had been harvested even during the year of famine. Imports of grain by railway averaged 2,200 tons a day into the interior of Madras and Mysore, and 1,000 tons a day into the interior of the Bombay Presidency. These figures do not include the large quantities of grain distributed into the interior by road, or canal, from the port of Madras, and from the lesser ports on the Coromandel, Malabar, and Southern Mahratta coasts. In August 1877 there were in Central and Northern India and in Bengal large stocks of food ready to go forward to the famine districts as soon as the railways could carry them.

During November and December 1876 hundreds of thousands of people sought and obtained relief wages on works which were not of the highest utility, and on which there was no adequate professional supervision. In the

the Government Despatch, conveying instructions for Sir Richard Temple's mission to the famine country, it was mentioned that small and well-supervised local relief works might properly be opened at the beginning of a period of distress, so long as there was doubt regarding the extent of scarcity; but that, when measures of relief on a large scale became clearly necessary, great public works of a permanently useful type should be opened for the employment of relief labourers. However, before the new orders reached the local officers, 1,050,000 persons in the Madras districts, and 266,000 in the Bombay districts, were, in the beginning of January, receiving relief wages for labour that was generally inadequate, on works that were often of little value. During January the manner of employing relief labourers changed greatly for the better in the Bombay districts, where the local government utilised to the full its staff of engineers, and possessed a number of excellent irrigation schemes and other projects. In the same month Sir Richard Temple was deputed by the Government of India to visit the famine districts, and to confer with the local governments and their officers as to the best means of enforcing economy and system in relief operations. It was found that vast numbers were in receipt of relief who, for a time at any rate, could support themselves. The relief wage-rate was lowered, the number of petty relief works was reduced, and the supervision of relief labour was increased. In consequence of these measures the numbers of people on the relief works were, at the end of April, 716,000 persons in the Madras districts, and 62,000 in Mysore. In Bombay, at the same time, the numbers had risen to 287,000. In Madras, 11 per cent. of these labourers were employed on useful works under professional supervision. In Bombay, 90 per cent. were so employed. In Mysore, 47 per cent. were on useful public works, but in Mysore the numbers on relief works were reduced as the pressure of the famine increased, and large sums were spent on infructuous alms, instead of being devoted to improving by relief labour the many irrigation works of the province. It is not intended to be implied that the relief works managed by revenue officers were absolutely useless or wholly unsupervised, but much of the roadwork was not of lasting value, while its cost was from twice to twenty times the ordinary rates; whereas, on the other hand, the irrigation and railway works executed under professional supervision, will be of permanent good in improving the country and averting future famines, and some of them were executed at only from 20 to 50 per cent. above ordinary rates.

Famine in Southern India.

Gratuitous relief on a large scale began early in the famine. By the end of December 1876 there were in the receipt of gratuitous relief, 110,000 persons in the Madras districts, 3,000 in Bombay, and 30,000 in Mysore. These numbers were somewhat reduced in January and February 1877; but from the end of February they increased enormously, and rose by the end of July to 839,000 in Madras, 160,000 in Bombay, and 151,000 in Mysore, in which province the number of persons in receipt of gratuitous relief was more than three times higher than the number of the relief labourers.

For convenience of reference, the principal events of the famine during 1877-8, the year under review, are recorded below separately for Mysore, Madras, and Bombay.

Mysore.

After a complete failure of the rains in June, July, and August 1877 the distress throughout Mysore increased rapidly, and in alarming proportions. The feeding places for the destitute were crowded with miserable wretches; prices rose to such a height that in some places during July only seven and eight pounds of grain were sold for a rupee; indeed, grave fears were entertained in Chitaldroog that it would soon be impossible to get grain at all to feed the paupers collected in the different kitchens, and considerable purchases were effected in Bangalore for the supply of that remote district. As prices reached their climax in July, so did the numbers charitably relieved in the end of August, when there were nearly 250,000 persons receiving food in the different kitchens. At that time the system of large relief works under the public works department had not been organised, and the labourers on civil relief works, who numbered 29,000, were dispersed over 1,746 works. The department of public works was employing 24,000 labourers. It was at this stage of the famine that the Viceroy visited Mysore, and the policy was introduced whereby all works under whatever agency carried on, were made subservient to the one pressing need of succouring the destitute. Under this system labour was concentrated, the 1,746 civil works were contracted to 293 in less than two months, and every

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effort was made to confine gratuitous relief to those whose condition was too low to expect any work from them at all. Shortly preceding these extensions and improvements of relief operations, there happily occurred a most welcome change in the character of the season. Copious floods of rain enabled agricultural operations to be resumed, and sensibly diminished the numbers of those employed in famine labour and in receipt of gratuitous relief. During the severity of pressure, namely, from December 1876 to October 1877, the average number of persons relieved in each of the 11 months was about 150,000, at a cost of about 700,000 *l.* for the period. Nearly two-thirds of the entire number of persons were fed gratuitously. In October and November 1877, the numbers on relief works increased rapidly, through the relegation of paupers from kitchens and relief camps. In December and January the attraction of the harvest made itself felt, and the numbers rapidly fell from 65,000 to 45,000. After the occupation thus given was over, they rose again in February and March, partly influenced by the opening of some new relief works. In May the rice harvest came on and rain began to fall, the effect of which was that the people dispersed in order to plough their fields, and to sow. About 10,000 persons were still in the relief camps at the close of the official year.

In the afflicted districts of the Madras Presidency from the month of April 1877 onwards prices continued to rise, distress became more aggravated, and the numbers seeking State relief shewed a steady increase. In May the rates of wages on relief works introduced in January were enhanced, an extensive organised system of village inspection and relief was instituted, under which money-doles were issued to the destitute in their own villages, and it was arranged that children too young to work should be gratuitously relieved on works by a money payment, and that in extreme cases clothing should be supplied to the destitute. Advances were at the same time made under the Land Improvement Act to cultivators for sinking wells and making improvements to lands, and weavers who could not earn their livelihood owing to the depression of trade were relieved by advances of money and materials. Between May and July the prospects of the season did not improve. The monsoon set in about the middle of June, but the rains were partial and inadequate. By the middle of July the position of affairs had become so critical that Government were forced to contemplate the probability of a serious prolongation of the famine, and to adopt measures accordingly. These measures were briefly, that all who could perform 50 per cent. of an ordinary task should be relieved on works; that those who could not do this should be relieved in their own villages; that village relief should be such as to tempt residents to remain at home unless able to work profitably for Government; that wanderers should be sent to closed camps and kept there to such labour as they were fit for; that camps should be divided into two portions, one for sick paupers needing medical treatment and relief, and the other for relief of paupers too weak to work, with two different scales of rations; that village relief, camp relief, and the rate of wages should be maintained on similar scales throughout; that in relief-works the principle of family union and support should be kept up, and that the larger works should with this view be allowed to be performed by piece-work; that those in camp who had become fit to travel should be relegated to village relief; that no foreigners, as for instance, people from Mysore, Hyderabad, or Bombay, should receive relief further than being detained in camp until they could be relegated; and that a large scheme of important relief works, such as the Coast Canal completion and extension, the improvement of the Palar Anicut channels, the Kistna Delta works, &c., should be forthwith put in hand. The difficulty of procuring grain for relief purposes became at this period so great that Government authorised district officers to advertise for supplies in each taluk sufficient for a month's consumption. By August upwards of two millions of people were entirely dependent on State aid. At the close of August 1877 the Viceroy visited Madras for the purpose of conferring with the Government as to modifications of famine arrangements. It was determined after some discussion: that all famine questions should thenceforward be laid before the Governor and disposed of by him; that collectors should address Government direct, instead of through the Board of Revenue, on famine matters; that Government should abstain from importing grain on its own account, and from any measure which might interfere with the activity of private trade; that a large scheme of useful public works under departmental supervision should be regarded as the principal feature of the relief

relief system, all other forms of relief being subsidiary to the main scheme; that large works under professional agency should not be limited to remunerative works alone, or those that could be finished during the continuance of the famine; that gratuitous relief should be, as far as possible, temporary and subsidiary to the main object of sending distressed people to the works, or relegating them to their homes; and that village relief, other than casual relief to famine-stricken travellers, should be confined to resident villagers who were house-ridden or otherwise unfitted for labour. These principles were formulated into a set of general instructions for the guidance of district officers. The Government of India undertook at the same time to strengthen the engineering staff of the Presidency and to furnish an adequate number of European officers for the supervision of gratuitous relief. Favorable rains in September 1877 afforded agricultural employment to the poor, and in the same month there was a fall of prices. This, combined with the improvements in organisation and supervision, resulted in a rapid decline in the number of persons dependent on State relief. Measures were also taken by Government to encourage the return of the people to their homes, by authorising collectors to make advances to needy ryots for the purchase of seed-grain, by directing the closure of petty works for which it was difficult to provide professional supervision, by the concentration of labourers on larger works, and by enjoining a firm application of the tests and limitations already laid down. The north-east monsoon set in towards the third week of October, and heavy rain fell in all districts excepting Ganjam and Vizagapatam. The total reduction in the numbers on relief in September and October amounted to nearly a million, and might have been larger but for the continued high state of prices. In November and December the numbers steadily decreased, and considerable reduction was effected in the strength of extra officers and establishments. In January 1878 and the following months prices began again to rise, and checked the more rapid diminution of persons on relief. Towards the beginning of March fresh works had to be started in North Arcot and Bellary. The continued high tendency of prices was followed by a revival of distress in parts. Some of the camps which had been closed in the Bellary district had to be reopened and new works had to be started. The pressure began to be felt also by the people in parts of the North Arcot, Coimbatore, Salem, and Chingleput districts. The numbers benefiting by State relief from first to last in 1877-8 can be seen as follows, dividing the year into four quarters. On 1 April 1877, there were 662,671 on works, and 175,665 gratuitously fed; total, 838,336. On 30 June 1877, there were 813,030 on works, and 542,579 gratuitously fed; total, 1,555,609. At the end of September 1877 the corresponding numbers were 634,581; 1,617,319; and 2,251,900. At the end of December 1877 the corresponding numbers were 199,136; 271,300; and 470,436. At the end of the official year 1877-78, the numbers were 128,745; 103,096; and 231,841. Taking only cases where the numbers on relief exceeded 100,000, the districts stood at the beginning of the year in the following order: Bellary, Kurnool, Cuddapah; at the end of June 1877 in the following order: Bellary, Kurnool, Cuddapah, Salem; and at the end of September 1877 in the following order: Salem, Bellary, Cuddapah, Kurnool, Coimbatore, North Arcot, Madura, Chingleput. At the end of 1877 the highest figure touched was 80,000 in North Arcot; Nellore, Kurnool, Chingleput, South Arcot and Salem also continued to shew high figures. At the end of the official year the only districts with high numbers were North Arcot, Salem and Coimbatore. There was no Government relief throughout the year in either Ganjam, Vizagapatam, the Godavari, or South Canara. The numbers were very trifling in Malabar and the Nilgiris.

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With regard to the famine in the Deccan and Western Carnatic, the period during which operations for the relief of distress were carried on by Government, began early in September 1876, and ended on 30 November 1877. The rainfall of 1876 up to the middle of August was scanty throughout the Deccan and Western Carnatic, and after this date there was none, except in Khandesh and three of the more southern districts, and nowhere in sufficient quantity to save any but a small portion of the harvest. Distress first manifested itself in Sholapur, and, in a minor degree, in Khandesh. Measures of relief were set on foot in the former district early in September, and similar steps were soon taken also in Satara and the Western Carnatic, as well as in the adjacent native states. Throughout the whole of the winter and spring the distress continued with

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unabated severity, but heavy showers towards the end of April 1877 in the southern parts of the tract affected gave promise of an early and favorable rainy season. The rain, however, after setting in without marked irregularity towards the middle of June failed almost entirely throughout the affected parts in July and August. This partial failure of rain, instead of being localised, as in 1876, in a certain portion of the Presidency, was universal, and for a short time it was feared that the usually fertile province of Gujarat would fall within the drought-stricken area. The prospect, however, changed in September, when plentiful rain fell over the districts regarding which these gloomy anticipations had been entertained. Ploughing began again where it had been stayed by the long spell of dry weather, and wherever the fields had been already sown, weeding and other employment was soon found for the numbers that had been compelled to have recourse to the State for subsistence. The relief works were rapidly deserted, and by the end of November 1877 the labourers employed on them were only $2\frac{1}{2}$ per cent. of the numbers mustered in the beginning of June. The famine affected 34,183 square miles of country, and a population estimated at 5,018,992, and distributed among nine districts, covering an area of 54,355 square miles, and containing a population of 7,963,927 souls. As regards the numbers of people supported by Government, it appears from the returns that 98,422 were mustered daily in November 1876. This number rose to 339,129 in January 1877, after which it suffered a slight fall till April, from which month it increased till June, when the culminating point was reached, there being 528,951 persons on the hands of Government. The decline was rapid till September, when a slight increase again took place, which, however, was temporary, and lasted only for the first few days of the month. As soon as the season declared itself the numbers fell off by one-half in October, and during November only 59,107 persons were on the daily rolls. As by this time field operations were in progress, the government considered it unnecessary to continue any longer measures of special relief for people who had the opportunity of maintaining themselves in their ordinary avocations. The works were therefore closed. As soon as it became certain in 1876 that the cold weather harvest would fail, the prices of food grains rose most suddenly. The holders of local stock declined to sell, either from anticipation of higher profits, or from a desire to retain a supply in hand in case of a still greater scarcity. In these circumstances, it became necessary for the Government to decide whether the importation of sufficient grain for the supply of those on the relief works should be undertaken by the State or left to private enterprise. It was finally determined to abstain from all interference with the ordinary trade, as it appeared that the latter might safely be trusted to do all that was needed. This policy, announced from the first to all local grain dealers, was adhered to consistently and successfully, except on the few occasions when a special strain was temporarily placed upon private resources with which they were unable to cope. Throughout the greater portion of the affected districts, the grain trade is in the hands of a professional class widely spread over India, whose business enables them to maintain a complete organisation for negotiating transactions in all parts of the country. Reassured by the declaration of Government that trade was to be left to its ordinary course, every dealer set his agency in motion from Bengal and the Punjab to the market of his own district, so that the railway stations were soon crowded with grain for delivery at the famine centres, and while the extraordinary demand lasted, the supply continued to be tendered as fast as the railway companies could furnish vehicles to convey it. During the period between October 1876 and November 1877 inclusive, 267,863 tons of food grain were conveyed by rail and 166,137 tons by sea along the coast into the famine districts. It may be said that the food supply was abundant, but owing to its having been imported from a distance, the price at which it was sold placed it beyond the reach of those to whom the unfavorable season had closed their ordinary means of livelihood. In dealing with the question of relief labour Government laid down the principles, first, that relief in the shape of wages should be granted in return for a fair amount of labour proportionate to the capabilities of the applicant; and secondly, that relief should be granted to none but those who were unable to support themselves in any other way. It was ensured that none who were willing to do a moderate task need remain without the means of subsistence; while the funds, administered by the State, were not squandered in the support of idlers or persons with resources of their own. There was, in addition,

addition, the delicate, yet onerous task of relieving those unable to work. Gratuitous relief was administered to none in their own houses, except in the case of persons unable to move, owing to sickness or infirmity, who were provided for by the village headman. For others, there were two establishments organised. At relief centres food was distributed to those living in the neighbourhood. At relief camps lodging as well as board was provided. The latter institutions were for the worst cases. The proportion of persons on gratuitous relief to those on the works was at first small, and except at the very end of the famine, when the able-bodied had been discharged, the number of those labouring for their subsistence was always larger than that of those receiving aid gratuitously. The maximum number of the latter class was touched in September 1877, when it reached 95,674 ; the numbers on the works in that month being 222,894. In May, when there were 361,349 persons on the works, only 30,146 were in receipt of gratuitous relief. The children under seven years old of those on the works, were most numerous in May and June 1877, when they numbered 106,309 and 111,050 respectively. The Bombay Government have shewn the cost of the famine to be as follows : total expenditure on public works, exclusive of those executed out of local funds, 1,001,800 *l.*; gratuitous relief, 120,374 *l.*; measures for preserving agricultural stock, 13,824 *l.*; remissions of revenue, 25,581 *l.*; loss of ordinary traffic on guaranteed railways, 320,000 *l.*; additional cost of administration, 110,000 *l.*; total debits, 1,591,579 *l.* On the credit side appear the following : value of works of permanent utility, 390,000 *l.*; sale proceeds of Government hay and corn, 4,313 *l.*; extra profits on guaranteed railways, 670,000 *l.*; total credits, 1,064,313 *l.* The net cost, as above calculated, was therefore 527,266 *l.*

Famine in Southern India.

Considerable additions were made during 1877-8 to the herbarium of the Royal Botanical Garden at Calcutta. This building, as well as the library, was shortly to be enlarged so as to facilitate scientific work. The project for the formation of a branch botanical garden at Rungaroon was abandoned, and in its stead a branch botanical garden was to be established at Darjeeling. The soil and climate of Rungaroon are not suited for such a garden, but in Darjeeling a good site has been secured through the liberality of a private gentleman. Many useful experiments can be undertaken there, more especially in connexion with the proposal of the Home Government to grow in India as many as possible of the drugs used as medicine, and now imported from England at great expense. A series of experiments with vanilla and ipecacuanha has shewn that these plants cannot be grown successfully as a crop in any part of Bengal. Experimental cultivation of the carob of the Mediterranean and the baobab, and various species of eucalyptus, also proved unsuccessful. Specimens of several kinds of grasses were sent to England for the purpose of ascertaining whether they could be utilised in the manufacture of paper. A favorable opinion was given of some of these fibres, and it was proposed to try experiments with them in the jails where paper-making has been adopted as a regular industry. A scheme which had been put forward by an English paper manufacturer for growing bamboo stocks as material for paper was tested during the year.

Horticulture, Experimental Farms, &c. Bengal.

Experimental sowings of wheat, barley and oats were made during 1877-8 at the Shillong model farm in Assam, and sowings were also made at a lower elevation. The agricultural experiments at the Shillong farm have mostly been unsuccessful, and, financially speaking, the institution was a failure.

Assam.

Three botanical gardens in the North-Western Provinces were, during 1877-8, under Mr. Duthie's charge: one at Saharanpur, and two at Mussoorie. The object of the gardens is to collect North Indian products for examination and arrangement, and to ascertain what useful products from other parts of the world can be successfully grown. Vegetable gardening is carried on to a considerable extent; seeds are brought from England and multiplied in Saharanpur for distribution to British regiments and the public, gratis to the former and at a low price to the latter. Fruit trees are also raised for distribution. Rhea cultivation is a prominent feature in the work of the gardens. Mussoorie gardens provide a botanical collection and a distributing centre for hill productions, and are supplementary to those at Saharanpur for the collection of hill products which will not thrive in the plains. A system for training hill gardeners, who are much wanted, has been introduced. Cawnpore Farm was practically the

North-Western Provinces and Oudh.

HORTICULTURE, EXPERIMENTAL FARMS, &c.

the only State farm retained for experimental purposes. A few experiments were still conducted at Allahabad farm, which is kept chiefly for the purpose of proving the agricultural value of the sewage of an Indian city. It was found that land manured with latrine sweepings brings, without irrigation, about 2 *l.*, and, with irrigation, about 4 *l.* an acre more than the ordinary rent on leases of not less than five years. At Cawnpore, where canal water and latrine manure are practically unlimited in supply, some land was let at more than 20 *l.* an acre. Lucknow Gardens are maintained chiefly for horticultural objects. Acclimatised flower seeds have been produced with success. Similar experiments were being made on vegetable seeds. Some attention was also paid to arboriculture; the greatest success in this line was obtained in the case of the eucalypti and carobs.

Punjab.

In regard to agricultural experiments in the Punjab during 1877-8, the cultivation of cuzco maize was carried on in the Hazara and Kangra districts on a small scale, but sufficient to demonstrate that this product could be successfully grown on the outer hills of the Punjab. Oat cultivation was extending with the demand; this cereal seems to do well in every part of the province where its growth is attempted. Sorgho was cultivated successfully in several localities.

Central Provinces.

During 1877-8 the Agri-Horticultural Society at Nagpore, in the Central Provinces, distributed comparatively few seedlings, cuttings, plants, and seeds, the public demand for such things being still very apathetic. Successful experiments were made in the case of the mahogany tree, edible date, and one kind of eucalyptus. Very successful experiments were also made in the cultivation of Carolina rice and cotton. Eleven native scholars were under training to become good practical gardeners.

British Burma.

Potato cultivation continued during 1877-8 to be actively carried on in the hilly portion of the Toungoo district of British Burma by a few missionaries and private persons. Fair crops were obtained, but the potatoes were of small size. They met with a ready sale both locally and in Rangoon. Phayre Museum, which is situated in the gardens of the Agri-Horticultural Society of British Burma, at Rangoon, was visited during 1877 by 211,351 persons, of whom 138,575 were Burmese and Chinese.

Mysore.

At the *Lal Bagh*, or horticultural gardens of Bangalore, the result of experiments in Liberian coffee shew that it will not thrive unshaded at the elevation of that city. Seven hundred plants of the carob tree had been raised from seed by the close of 1877-8, and a number of them were ready for distribution. At the Bangalore experimental farm the season was very unfavorable, but some useful experiments were conducted with various kinds of fodder, potatoes, and other crops.

Madras.

The school of agriculture at Sydapet, which was opened in October 1876, was in full work during 1877-8, but no second class was taken in. From this cause a break in the continuity of out-going students will occur in 1890. It is stated that the institution is likely to prove very successful. In the Sydapet Government experimental farm the nature of the season prevented much work of investigation. Experiments were conducted for the cultivation of cotton, sunn hemp, jute, rhea, Manilla hemp, indigo, and several other crops. At Ootacamund Botanical Garden a good crop was obtained from potatoes imported from Australia; Liberian coffee was tried with success, and many other useful experiments were conducted; a medicinal garden was formed during the year, and specimens of all the medicinal plants grown in the garden were supplied for transmission to the Paris Exhibition.

Bombay.

Experimental and model farms are established in two districts of the Bombay Presidency, one in Sind and the other in Khandesh. The former has to contend against climatic difficulties, but it appears from the report for 1877-8 to be doing good work, both indirectly, as an example to the neighbouring cultivators of the advantage of careful attention to the soil, and directly, in the way of arboriculture, since plantings and shoots from it are in much request among the neighbouring gardeners. In Khandesh the work is conducted more extensively, and in a more favorable climate. Horticulture is carried on in several places on a small scale, and with the most successful results at the botanical gardens of Ganesh Khind. The results of experiments with mahogany trees, the seed of which was sent from Kew Gardens and planted in 1874, shew that these trees can be acclimatised and established, if their watering be well attended to for the first two years after planting.

No

No information is given in the Administration Reports as to the amount of agricultural stock during 1877-8 in Bengal, the North-Western Provinces, and Oudh. AGRICULTURAL STOCK. Bengal, N. W. Provinces, and Oudh.

According to an estimate given for 1877-8, there were in Assam 1,531,870 cows, bullocks, and buffaloes, 235 horses, 6,006 ponies, 63 donkeys, 302,353 sheep and goats, and 105,651 pigs. These figures do not include the stock in four districts, for which no establishments had been ever sanctioned to collect the information. Assam.

Statistics are prepared only quinquennially regarding agricultural stock in the Punjab. The return for 1873-4 shewed that there were in the province 6,570,212 cows, bullocks, and buffaloes, 84,639 horses, 51,395 ponies, 288,118 donkeys, 3,849,842 sheep and goats, and 165,567 camels. Cattle disease appeared in several districts of the province during 1877-8, and was severely felt in some parts. There was, moreover, great loss of cattle, owing to the failure of the summer rains, and the consequent scarcity of fodder. In the Umballa district the deaths of cattle from starvation were estimated at two-thirds of the stock of the district, while in the Delhi and Hissar divisions, it was calculated that over 200,000 head died from the same cause. Efforts to improve the breed of sheep and horned cattle by means of rams and bulls obtained from the Hissar farm were still continued. Fairly good results were obtained in some districts. The usual cattle-fairs were held during the year, and the number of animals exhibited amounted to 186,899, against 183,027 in 1876-7. The steadily increasing attendance at these periodical assemblages proves their advantages to the community and their growing importance. At the horse-fair held in Rawalpindi in March 1878, there were exhibited 2,250 horses and 490 mules and donkeys. Some very fine fillies were shewn. Prizes were given for foreign horses from Kabul, Persia, &c., and 85 such horses were shewn, many of them fine animals. A special set of prizes was offered for mules over $13\frac{1}{2}$ hands in height, and many very handsome and powerful animals, ranging up 15 hands in height, were exhibited. Sales effected at the fair realised 7,895 *l.* The average price for native cavalry remounts was 17 *l.*, or 7 *l.* less than in 1877. Floods in the Indus somewhat interfered with the Dera Ismail Khan fair of 1877-8, at which upwards of 200 mares and fillies and 100 colts competed for the prizes. The stock of Government stallions shewed a marked superiority. At the close of the year there were 133 Government stallions and 49 donkey stallions in the Punjab. Punjab.

According to the settlement records of the Central Provinces, the estimated agricultural stock during 1877-8 was as follows: 5,196,681 cows, bullocks, and buffaloes, 11,862 horses, 82,098 ponies, 21,779 donkeys, and 640,642 sheep and goats. Central Provinces.

Cattle shows were held during 1877-8 at four places in British Burma, prizes being given for horses, buffaloes, bullocks, and other live stock. Not much interest in the shows is yet displayed by the people. Buffaloes in the province numbered 661,542, and cows and bullocks 713,715. Many cattle perished in the floods of August 1877, particularly in Pegu. There were 5,758 horses and ponies against 6,191 in 1876-7. It was thought that the importation of two stallions from Dharwar about three years before would have led to good results, by inducing the Burmese to improve their stock by cross-breeding; but the anticipation has not been fulfilled. Elephants numbered 1,324. There were 19,690 sheep and goats, principally owned by natives of India; and there were 102,458 pigs, chiefly reared by Chinese settlers. British Burma.

Among horned cattle in Ajmere, the severe drought during 1877-8 caused very great mortality. No return has been supplied regarding the numbers of agricultural stock in the province. Ajmere

Estimates of the agricultural stock in Berar during 1877-8 give the following figures: 1,385,874 cows and bullocks, 6,522 horses, 26,048 ponies, 17,024 donkeys, 385,657 sheep and goats, and 2,726 pigs. Berar.

In Mysore, the numbers of live stock were computed for 1877-8 to be as follows: 2,297,550 cows and bullocks, 4,917 horses, 13,632 ponies, 37,070 donkeys, 1,592,268 sheep and goats, and 32,329 pigs. Mysore.

The number of live stock in Coorg during 1877-8 was estimated at 135,327; of which 118,163 were cows and bullocks, 266 horses, 534 ponies, 290 donkeys, 4,546 sheep and goats, and 11,528 pigs. Coorg.

Mortality among cattle and sheep was very high in the Madras Presidency during Madras.

AGRICULTURAL STOCK.

during the whole of the famine period; 1,319,204 deaths were recorded in 1877-8, against 922,628 in 1876-7, and 514,390 in 1875-6. Cattle suffered from disease and from want of pasture and fodder down to the autumn of 1877, and even after that they were so much reduced in strength, that many died from general debility, though pasture was available. A very severe form of rinderpest was prevalent among the cattle in some of the coffee estates in Malabar. According to the returns of the numbers of agricultural live stock in the Presidency, there were 2,938,010 cows, 3,507,593 bullocks, 1,331,820 buffaloes, 21,497 horses, 17,896 ponies, 127,784 donkeys, 109 mules, 4,572,264 sheep, 2,724,175 goats, 246,468 pigs, 604 elephants, and 45 camels.

Bombay.

The production of horses of stronger make and higher breed than those of indigenous stock has been one of the objects of the Bombay Government. In the valleys near Poona, Ahmednagar, Kathiawar, and Khandesh, there were 59 stallions kept for the purpose, at a cost of 2,395 *l.* during 1877-8. The number of mares covered was 1,957. Four horse shows were held, at which 436 animals were exhibited. The operations of the year were somewhat interfered with by the famine, which also increased the expense of maintaining the stud. With regard to the stock possessed by the agricultural population, there was a large decrease during the year in almost every sort of cattle; but the loss of stock is said to have been not enough to seriously embarrass the landholders in their usual operations after the close of the year; the estimated numbers of live stock in the Presidency (with the exception of three districts in Sind for which there are no returns) were 2,810,293 bullocks, 1,844,918 cows, 387,010 male and 1,003,482 female buffaloes, 45,545 horses, 36,002 mares, 19,270 foals, 84,615 asses, 2,627,532 sheep and goats, and 18,607 camels.

COTTON.

Bengal.

There were 162,245 acres in Bengal under cotton cultivation during 1877-8, yielding 138,824 cwt. of cleaned cotton. The largest area (31,159 acres) under cotton was in the district of Sarun. Next in order of extent came the Chittagong Hill districts with 28,000 acres, but though Sarun had the largest area under cultivation, the outturn was not sufficient even for local requirements. The largest outturn was in the Chittagong Hill districts, where it amounted to 50,000 cwt. Cotton cultivation is not of much importance in Bengal, except in the Chittagong Hill districts, in Cuttack and parts of Julpigoree. There is said to be no attempt on the part of cultivators to extend or improve the industry, which is gradually languishing, owing to the introduction and increasing use of foreign twists and cloths.

Punjab.

Only 656,609 acres were under cotton cultivation in the Punjab during the season of 1877.

Central Provinces.

In the Central Provinces, 837,083 acres were cultivated with cotton in 1877-8. The average production per acre in Nagpur was 60 lbs., and in the Warda district, 57½ lbs. Two fields under cotton in the Commercial farm yielded 47 and 77 lbs. of cleaned cotton per acre respectively. One acre sown at the experimental farm with Hinganghat cotton yielded 204 lbs. of cleaned cotton, which result, though good as compared with ordinary results, did not approach those previously achieved.

Berar.

In Berar, there was an increase during 1877-8 of 39,155 acres under cotton cultivation as compared with the previous year. The yield was much about the average everywhere; but the quality was injured by the rain which fell in December. The total outturn of cotton was estimated at 1,244,976 cwt. Exports of cleaned cotton amounted to 1,296,693 cwt., and were despatched in 355,838 full pressed bales. The average yield per acre was 67 lbs.

Madras.

The area in the Madras Presidency cultivated with cotton in 1877-8 was 30 per cent. less than in 1875-6. The great rise in the price of food probably induced the ryots to devote their land rather to the production of grain than to that of special crops. In Kurnool, Bellary and Kuddapah, cotton cultivation fell off by nearly 30 per cent. Altogether 1,086,032 acres were under cotton in the various districts of the Presidency.

Bombay.

In the Bombay Presidency the most important crop, from a commercial point of view, is cotton, which covered in 1877-8 an area of 2,812,651 acres (including 988,973 acres in native states), as compared with 3,223,237 acres in 1876-7. There was an increase of nearly 550,000 acres in the southern division, but a serious falling off in the northern and in native states, particularly Kathiawar.

Kathiawar. The total contraction of this cultivation amounted to about 12 per cent. on that of the previous year, which in its turn was 28 per cent. worse than in 1875-6. Failure of rain in July 1877, and the stimulus given by high prices to the growth of cereals account for the results. The decrease was in the indigenous variety grown in Gujarat and the north, while the Dharwar-American, or exotic, staple, the cultivation of which is confined chiefly to Khandesh and the Western Carnatic, was sown more largely, owing to the failure of the crop in the previous year. Statistics as to outturn shew an increased yield of both staples, but more particularly of the exotic cotton; the gross outturn, however, was far below the average of the previous five years. At the average Bombay market rate the estimated value of the crop was over 3,500,000 *l.* It was suggested that by careful preparation the indigenous variety of cotton in the southern districts might, as in Broach, be improved, so as to excel in quality the exotic staple introduced from New Orleans. Experiments in Chinese and Bamieh cotton, that were carried on, did not have a fair chance of success, but were to be resumed in subsequent seasons. COTTON.

Owing to a favorable season the indigo crop of 1877-8 was a very good one, amounting to 113,201 maunds, or 83,166 cwt. In the previous year the crop had been remarkably large, namely, 155,149 maunds, or 113,997 lbs. Prices obtained in 1877-8 for dye of the previous year's crop, were rather lower than the prices of 1876-7. Next to the United Kingdom, France is the largest consumer. Indigo is now sent direct to France by the Suez Canal instead of being obtained by French merchants from England. Altogether 99,402 cwt. (*i.e.*, 135,297 maunds, of an average value of 225 rupees) was exported from Bengal during the year 1877-8, or nearly 25,000 cwt. above the average export of the last 30 years. INDIGO. Bengal.

Indigo cultivation in the Punjab occupied only 106,956 acres during 1877, as compared with 129,409 acres in the previous year; but in the Dera Ghazi Khan district, where this crop is of considerable importance, there was an increase from 23,999 acres to 26,765 acres. Punjab.

Very little indigo cultivation is carried on in the Central Provinces. During 1877-8 only 243 acres were under indigo. Central Provinces.

In the Madras Presidency, indigo cultivation suffered terribly during 1877-8 owing to the falling off in the demand for the article, in addition to other causes which operated prejudicially. The decrease in the area was altogether 54 per cent. compared with the cultivation of 1875-6. The total area under indigo was 137,420 acres. Cultivation of the indigo plant is not restricted to any one district, but is most extensively carried on in Kuddapah, South Arcot, Kistna, Nellore and Kurnool. Madras.

No statistics for the whole of India have been received of the tea cultivation in 1877-8. It was estimated that the total area under tea in Assam, Bengal, the North-Western Provinces, Punjab, Madras, and British Burma, was 145,000 acres in 1876-7, and that the approximate yield was 29,500,000 lbs. During 1876-7 the quantity exported from British India was 27,784,124 lbs., valued at 2,607,425 *l.* In 1877-8 the quantity exported rose to 33,459,075 lbs., and the value to 3,044,571 *l.* As regards the quality of the tea produced, there was a decided falling-off, and the prices realised in London were less than they had ever been. The increase in quantity was mainly due to the circumstance that three years previously there was a great extension of cultivation, and the plants were coming in 1877-8 into full bearing, and greatly increasing the supply. Owing to high prices in former years, a tendency was developed in the manufacture to sacrifice quality for quantity. This, in the face of the large competing crop from China, depressed the value, and the general result was, that, although the export of tea shewed an increase in quantity, the pecuniary result was not so satisfactory as in previous years. Almost all the tea from Bengal goes to the United Kingdom, the exports elsewhere being trivial in comparison. TEA.

Tea in Bengal is cultivated to a greater or less extent in the Cooch Behar, Dacca, Chittagong, and Chota Nagpore divisions. In 1877-8 there were in the entire province of Bengal 2,211 tea gardens, situated in altitudes varying from 13,000 to 5,000 feet above the level of the sea, covering an area of about 63,000 acres, and producing about 6,000,000 pounds of tea. Bengal.

Great difficulty continued to be felt in Assam in getting information from the planters as to the state of tea culture in the province. Altogether 1,718 Assam.

TEA.

estates with a total area of 736,082 acres were held for the purpose of tea cultivation under different kinds of tenures, but only about a seventh of the entire area was actually planted. The total outturn of tea during the year was returned at 23,352,298 lbs. Owing to the widest divergence of opinion in the matter among the planters, it was found impossible to give figures shewing the cost of cultivation and manufacture. Prices received for tea during the year were generally low, owing to the London market having been flooded with coarse tea during previous years. Machinery of all kinds was being introduced into all the large gardens in the province.

Punjab. Further extension of tea cultivation in the Punjab was made during 1877-8, the area planted increasing from 8,060 acres to 10,046 acres, while the yield of tea rose from 766,560 lbs. to 1,113,106 lbs. The average yield of all the land planted was calculated at 111 lbs. an acre.

British Burma. There is one small tea estate in the Akyab district of Arakan in British Burma, and, when the resources of that district are better known, tea planting will, doubtless, be extensively introduced. The area under cultivation during 1877-8 was 150 acres, on 120 acres of which there were mature plants. The yield for the year was 25,000 lbs. of tea, mature plants producing about 209 lbs. an acre. Wild tea plants are found in part of the Tenasserim division, where there is little doubt the cultivation of the plant would succeed well.

Coorg. A little tea is grown in some of the coffee estates in Coorg.

Madras. The extent of land under cultivation of tea in the Madras Presidency was 3,142 acres in 1876-7. In 1877-8 the season was favorable for the cultivation of the plant throughout the Neilgherry district, and the exports consequently increased by about 36,000 lbs. in quantity and 2,600 *l.* in value over those of the preceding year.

COFFEE. Complete returns for 1877-8 of the coffee cultivation in British India have not been received.

Bengal. It is understood that coffee of very good quality is produced in Chittagong, where the land and climate are said to be well suited to the cultivation of the plant; but no particulars have been supplied to the Bengal Government by the planters. There are no coffee plantations in any other part of the province of Bengal, though a few plants are sometimes seen in private gardens.

British Burma. In British Burma the Roman Catholic Missionaries at Toungoo have a successful coffee plantation, but no information has been given with regard to it.

Mysore. Beyond the fact that 128,438 acres were under coffee cultivation in Mysore during 1877-8, there is scarcely any other information available on the subject. The season was a bad one for the production of coffee, and the value of the quantity manufactured is estimated to have been only 158,952 *l.* in 1877-8, as compared with 317,143 *l.* in 1875-6.

Coorg. About 45,150 acres were under coffee cultivation in Coorg during 1877-8. In coffee lands there was an increase during the year of 2,658 acres of assessed land in occupation and 1,000 acres of planted land. The actual area of planted and unplanted land in occupation by European and Native planters respectively, was:—for Europeans, 26,469 acres, and 21,757 acres; for Natives, 18,681 acres, and 20,086 acres. Labour was plentiful, but owing to the reduced condition of many of the coolies, who were mostly emigrants from the neighbouring famine-stricken province of Mysore, there was a general complaint on the part of the employers that the work turned out was poor.

Madras. As regards the Madras Presidency, the year 1877-8 was very unfavorable to coffee, except in the Ouchterlony valley and the South-east Wynad; the crops there were singularly good. In the greater part of the coffee area the rainfall of March and April 1877 brought out heavy blossom, but this was destroyed by the succeeding drought. It is understood that coffee sold during 1877-8 at over 100 *l.* a ton, if of the best quality. Over 33,000,000 lbs. of coffee were exported from the Presidency in 1877-8.

TOBACCO.

N. W. Provinces and Bengal. Ghazipur tobacco farm remained under the management of Messrs. Begg and Sutherland. The drought, which was extreme in Ghazipur in 1877, prevented the growth of good crops, only 50,000 lbs. of inferior quality being obtained from 60 acres. A second professional curer and manufacturer arrived from America in time to raise an excellent crop of more than 150,000 lbs. on 200 acres at the branch farm at Pusa in Bengal. Of this amount 15,000 lbs. were sent to England and valued at prices varying from 2½ *d.* to 5½ *d.* Experiments made

made in the hills of Ranikhet were not yet successful. Measures were taken for the constitution of a tobacco plantation in Kumaun from the surplus proceeds of the Ghazipur tobacco farm, and a mulatto curer was provided to supervise the work. Tobacco.

Tobacco of excellent quality grows freely all over British Burma, but little fit for the European market is produced, owing to the ignorance of the natives as to the proper mode of drying and curing the leaf. Not enough, however, is grown for home consumption, and enormous quantities have to be imported from India. It was expected that the experimental tobacco farm at Myouktoung on the Kolodan river would have been useful as a means of instructing the natives; but the season of 1877-8 was bad; the superintendent was in ill health, and died shortly after assuming charge; labour could not be procured to keep the farm in order; and when a successor was obtained the farm was found in a backward state. The operations of the year were therefore confined to the cultivation of a few acres only of tobacco. British Burma.

There were 18,324 acres in Mysore devoted to the cultivation of tobacco during 18778. Mysore.

In the Madras Presidency the tobacco plant is extensively cultivated in the Godavari district, and the port of Cocanada is the principal seat of trade. The leaf is also grown in all the other districts, especially South Kanara and Malabar. More than three-fourths of the raw produce goes to British Burma, where it is converted into cheroots. A portion is also taken by Mauritius and Bourbon for the consumption of the Indian cooly immigrants there. Most of the remainder is manufactured into cigars, and sent partly to Bengal and Bombay, and partly to the United Kingdom. Exports from the Presidency increased from 5,792,808 lbs. valued at 101,730 *l.* in 1876-7 to .6,411,051 lbs. valued at 111,684 *l.* in 1877-8. Madras.

In the Bombay Presidency during 1877-8 there were 40,702 acres planted with tobacco, which grows more or less in almost every district. Bombay.

Although the progress of the cinchona plantations in the Darjeeling district of Bengal has for some years been considerable, the results of 1877-8 were better than any which had previously been attained. These plantations consist of two parts, an older portion lying in the valley of the Rungjo, and a newer portion, begun in 1875, on the Sitong Spur and the adjacent valley of the Ryang. Both are, however, under one management. With the view of practically testing the cost at which, with the experience already accumulated by the officers in charge, this valuable medicinal tree can be grown, the accounts of the younger plantation have from its beginning been kept distinct. Sitong plantation was during 1877-8 extended by 152 acres at a cost of 1,021 *l.* Its area has thus been brought up to 242 acres. It was as yet too young to yield a crop. On the older plantation 97 acres of new ground were planted out, bringing up the area to nearly 2,000 acres. The total working expenses for the year were 5,774 *l.*, against which has to be set the value of a crop of bark amounting to 344,225 lbs., the whole of which was made over to the quinologist. The bark yielded in former years amounted to 529,017 lbs., so that up to the end of 1877-8 there had been taken from these plantations since their beginning no less than 873,242 lbs. of dry bark, and a future annual yield of from 300,000 lbs. to 400,000 lbs. was to be expected. The species under cultivation being chiefly *Cinchona succirubra*, produce has hitherto consisted, and for some time must consist mainly, of red bark, a sort which, though rich in its total yield of alkaloids, is, by comparison with yellow bark, poor in quinine. Efforts, however, have steadily been made to increase the cultivation of the yellow bark tree (*C. Calisaya*), but owing to the difficulty of propagating the best varieties of this species, progress has been, and apparently must continue to be, slow. The manufacture of "cinchona febrifuge" from the red bark yielded by these plantations has become one of some practical importance. During 1877-8 this preparation was largely employed in substitution for quinine in all the Government hospitals and dispensaries throughout the Presidency, and a saving of from 20,000 *l.* to 30,000 *l.* has thereby resulted. About 2,000 lbs. was in addition sold to the public, realising 3,500 *l.* Cinchona febrifuge, as issued by the Government Quinologist, is in the form of a white, or nearly white, powder, and contains the alkaloids naturally present in the bark of *C. succirubra*, namely, quinine, cinchonidine, cichonine, quinamine, and the substance or Cinchona. Bengal.

CINCHONA.

substances known as amorphous alkaloid. Although quinine is the best known of these, it has been fully proved that the others possess in a greater or less degree the same febrifugal properties. Early trials of the preparation by Drs. Chevers, Ewart, Bird, and French gave results that were entirely favorable to it; but experiments which followed by other officers led to some variety of opinion, and while many pronounced it as useful as quinine, it was considered by others to produce an undue amount of nausea and sickness. Further experience, however, tended to confirm the favorable view of its efficacy, and at the beginning of 1877–8 Dr. Beatson, the Surgeon General, in a circular memorandum, stated that the extensive experiments carried out during the previous autumn in every circle of the Presidency had left no shadow of doubt of its being a perfectly safe and efficient substitute for quinine in all cases of ordinary intermittent fever. He accordingly ordered that in all indents made by officers attached to native military charges three-fourths of the sanctioned amount of quinine should be replaced by cinchona febrifuge. On his recommendation the Bengal Government adopted the same course for all civil hospitals and dispensaries under its control. The result was perfectly satisfactory, and by thus reducing the expenditure of quinine to one-fourth, the large saving already mentioned was effected.

At the same time, in consequence of the objection which some officers had at first made to this preparation, namely, that it occasionally produced disagreeable nausea, a committee was appointed to ascertain whether the febrifuge would be improved by eliminating any of its constituents.

At the end of 1876 sanction was given for the sale of febrifuge to the general public, and Dr. King undertook to issue it from his office at the Botanical Gardens. The medicine was advertised in several newspapers, and also in some local Government gazettes. Repeated demands were received, not from Bengal only, but from all parts of the three Presidencies, and from native States. A good deal was disposed of to Government officials in the Punjab, the Central and North-Western Provinces, to planters and other employers of labour in Bengal, Assam, and Travancore, and to medical missionaries all over the country. Druggists in Calcutta and Bombay, both native and European, and private medical practitioners, also made purchases in some quantity. It is believed that progress has thus been made in putting this remedy within the reach of the poor, who are the chief sufferers from the commonest of tropical diseases.

Manufacture of the febrifuge was still conducted in the temporary factory at Mongpoo; the quantity made during 1877–8 was 5,162 lbs., the total amount issued since the factory was started being 10,901 lbs. Exclusive of the price of the bark, the cost of production was *Rs.* 4. 1. 1½. per lb., but this includes the cost of erecting a brick drying house and the selling charges. If these be deducted, the actual manufacturing expenses were only *Rs.* 3. 3. 2½. per lb.

Expenditure on the plantations, excluding the Sitong section, was 5,790 *l.*, and the quinologist's expenditure was 2,764 *l.*, making a total of 8,554 *l.* The revenue derived from the sale of febrifuge to the public was 3,519 *l.*, and the amount debited against the Medical Departments of Bengal and Bombay for febrifuge and bark supplied was 6,188 *l.*, making a total revenue of 9,707 *l.* Receipts, therefore, exceeded expenditure by 1,153 *l.* As 1876-7 was the first year in which the febrifuge entered into general use by the Government or the public, the financial result was satisfactory. Doubtless the consumption of the febrifuge will rapidly increase, and when it reaches about 8,000 lb. a year, the quinologist calculates that the annual profit (which represents interest on capital) will amount to 4,000 *l.*

British Burma.

In the cinchona plantation at Thandoungyee, in British Burma, during the rainy season of 1877, 20,300 seedlings and cuttings of *Cinchona succirubra* and a few *C. Calisaya* were put out where the yellow bark variety had died. All the trees of the *condaminea* species were expected to die in a few years. A good number, which were found in a perishing state in October, were cut down and barked. The bark thus obtained, 320 lbs., was made over to the principal medical officer in Rangoon for use in hospitals; but it is doubtful if the bark obtained from diseased, dying, or dead trees can be of much or any medicinal value. The diseased trees were, in the autumn, attacked by a beetle, which accelerated their death. So unsatisfactory were the results obtained from the plantation, that it was decided to reduce the future expenditure.

No

No successor having been appointed to Mr. McIvor, who died in June 1876, the cinchona plantations belonging to the Madras Government on the Nilgiris, were during 1877-8 without a special superintendent, and continued under the control of the Commissioner. The season during 1877-8 was, on the whole, unfavorable, but better than that of the previous year. The fall of rain at Neddivattum was 116·89 inches against 96·64 in 1876-7; at Dodabetta the fall was 61·33 compared with 27·70 in the previous year. During the months of June and August the rains were very heavy at Neddivattum, the fall being 41·80 and 31·02 inches respectively. The appearance of the plantations at the end of the year was not very satisfactory owing to the high winds that prevailed during the months of December and February, which stripped the trees of a great portion of their foliage. The year was very favorable for the collection of crop, and a larger quantity of bark than usual was taken, amounting in all to 138,808½ lbs., of which 132,951½ lbs. was shipped to England, 5,330 lbs. was supplied to the Madras and Bombay Medical Departments, and 527 lbs. was detained in store. The plantations were as usual thoroughly weeded, and the weeds buried at the roots of the trees; 14,876 cuttings of the *Lanceolata* and *Pitayensis* varieties were propagated at the propagating houses above the Government Botanical Gardens. A small number of plants of these varieties were planted out at Dodabetta in place of failures, and 400 were sent to a gentleman in Ceylon for experimental planting. The propagating-house at Neddivattum was completed in April 1878, and stocked with cuttings of C. *Calisaya*, *pubescens*, &c. Altogether 142,000 plants were distributed to the public in 1876-7, and 187,350 in 1877-8, the price charged being two pies (about a farthing) each. Much more seed was distributed than in 1876-7, the quantity rising from 143 oz. to 326 lb. The supply of moss was becoming yearly a greater source of anxiety. Several extensive private cinchona plantations have been opened out adjacent to the Government plantations, and when these estates begin to yield crop, the supply of moss will certainly fail unless a substitute is found or coppicing is resorted to more than hitherto. The difficulty in procuring labour is also stated to be yearly increasing. During the year sickness broke out among the coolies at the Neddivattum plantations. Several of the men died, and others absconded from fright. Receipts during the year amounted to 35,875 *l.* and expenditure to 6,977 *l.*, the net profit being, therefore, 28,898 *l.* A special officer was employed during the year in making an enumeration of the trees and in reporting on various detailed points. Only 569,031 plants were found in permanent plantation. Of these there were 226,936 at Dodabetta, 208,780 at Neddivattum, and 133,315 at Pykara. There were 305,432 crown barks, 260,837 red barks, 1,874 grey barks, 552 yellow barks, and 336 of other species. Arrangements were being made at the close of the official year for appointing a committee to investigate the questions of the management of the plantations, the reemployment of a quinologist, and the resumption of the local manufacture of the febrifuge.

CINCHONA. Madras.

Forty square miles of forest were added to the Government reserves in Bengal during 1877-8, and the total area was thus raised to 3,430 square miles. Further extensions were in contemplation. It was expected that at the end of 1878-9 there would be 4,406 square miles of State forests in Bengal. Of this area 823 square miles are situated in the lower Himalayas and the adjoining *terai* and *duars*, and the rest in Chittagong, the Sunderbuns, Chota Nagpur, and Shahabad. During the year good progress was made in the demarcation of boundaries, the opening out of roads, and the extension of plantations. The financial working of the forest department was thoroughly successful, and the cash surplus rose from 1,071 *l.* to 17,125 *l.* According to the Finance and Revenue Accounts the collections rose from 22,240 *l.* in 1876-7 to 42,623 *l.* in 1877-8.

FORESTS. Bengal.

Much activity was displayed by the forest department in Assam during 1877-8. An area of 72 square miles was added to the Government forest reserves. Demarcation of forest boundaries was pushed on vigorously. An area of 690 square miles was gazetted as "open forests." Measures taken to protect the forests from jungle fires were specially successful, owing to the cooperation of the country people with the officers of the department. The experimental plantations made much real progress. Forest expenditure in Assam must continue to be heavy for some time, but the total forest receipts

Assam.

FORESTS. are increasing every year. The collections rose from 8,157 *l.* in 1876-7 to 13,433 *l.* in 1877-8.

N. W. Provinces and Oudh. The forest branch of the North-Western Provinces and Oudh hitherto under the Public Works Department, was transferred to the Revenue Department as being intimately connected with the important question of revenue and settlement. During 1877-8 about 84,170 sleepers were supplied to State railways. On 31 March 1878 there were 2,360 square miles of reserved and nine square miles of unreserved forests in the North-Western Provinces, and 1,113 square miles of reserved forests in Oudh. Extensive conservancy operations were carried on during the year, and progress was made in the construction of roads, bridges, and buildings. Good work was continued to be performed by the nursery at Ranikhet. Eight cases occurred in the North-Western Provinces, and three in Oudh, of wilful injury being done to the forests by fire. There has been a steady falling-off some years in the forest revenue collections of the North-Western Provinces. In 1872-3 they amounted to 164,286 *l.*, and in 1877-8 they were only 80,015 *l.* The revenue from the Oudh forests improved during 1877-8, the collections being 40,295 *l.* as compared with 33,545 *l.* in the previous year.

Punjab. Tracts and woodlands under the control of the Punjab forest department at the end of 1877-8 comprised a total area of 6,858 square miles, of which 3,791 square miles were reserved and 3,067 unreserved, but in the reserved area are not included tracts in districts which are under settlement. Forest demarcation, settlement, and preservation work, was successfully carried on. Considerable delay, however, unavoidably occurred in the demarcation of many forest tracts which the Government desired in whole or in part to reserve. The causes of the delay were two-fold, the paucity of forest officers, and the desire of awaiting the passing of a measure which subsequently became law, namely, the Indian Forest Act (VII of 1878). Many useful experiments were carried out in the planting of various kinds of trees. The amount of forest revenue collected during the year 1877-8 was 68,371 *l.*

Central Provinces. In July 1877 a rearrangement and distribution of forest charges in the Central Provinces was effected, having for its object the better management of forests in ten of the districts. The area of the reserved forests was during the year 1877-8 increased from 2,392 to 2,548 square miles, and that of the unreserved forests from 16,442 to 16,952 square miles; the latter addition was caused by the inclusion of Government waste lands in the Sambalpur district. The collections of forest revenue were 68,391 *l.* during 1877-8, as compared with 72,618 *l.* in 1875-6.

British Burma. A greater amount of revenue is received from the forests in British Burma than from those in any other province in India. During the ten years ending with 1877-8 the total collections were 1,129,739 *l.*, of which 160,308 *l.* belongs to the last year of the period. Payments in realisation of the revenue amounted in 1877-8 to 85.823 *l.* The girdling of teak trees in British Burma has been suspended since 1875, and the only teak brought to market from forests in British territory is either obtained from trees previously girdled or found otherwise dead in the forests, or is drift timber. Forest operations are at present chiefly confined to the formation of reserves and the conservation and improvement of the existing timber supplies of the country; large quantities of timber have nevertheless continued to be extracted from the forests of the province. In 1877-8 the outturn was 39,081 tons of teak and 3,138 tons of other timber, against 46,437 and 2,608 tons respectively in the previous year. Part of the outturn in 1877-8 was due to exceptionally high floods, which allowed 5,301 logs neaped in former years to be floated down. Teak timber does not, however, as a general rule, reach the market until two or three years after it has been girdled. Importation of teak from Upper Burma, Siam, and Karennee, did not slacken, and 211,813 logs were during 1877-8 brought down the rivers from beyond the frontier. In the formation of reserve forests not much progress was made. A total area of 68,198 acres was protected from fire in the Pegu and Tenasserim divisions. In Tenasserim the protection was very effective, and the cost trifling. In Pegu, notwithstanding a much larger expenditure, fires occurred both in the reserve tracts and in the plantations.

Ajmere. In the Ajmere and Mhairwarra districts the year 1877-8 was a bad one for forest conservation, and the reboisement of the hills was at a standstill.

During

During the year 1877-8 two square miles were added to the area of the reserved forests in Berar, bringing up the total to 1,402 square miles. With one exception all the state reserves had been permanently demarcated. In the matter of conservancy and improvement steady progress is being yearly made. Up to 31 March 1877 there were 610,142 acres successfully protected from fire. During the dry season of 1877-8 attempt was made to protect 633,937 acres in all, and actual protection was given to 554,577 acres. The area under plantations increased from 2,528 to 2,993 acres, 1,449 of which were fully and the remainder partially stocked. Conservation of unreserved forests (the area of which remained as in the previous year, namely, 2,758 square-miles), was receiving a fair amount of attention. Forests. Berar.

At the close of 1877-8 the area of the State forests in Mysore was 442 square miles. Boundary lines were in good order, and their total length was 212 miles. In consequence of the long-continued drought, the experiment of raising casuarina trees to form boundary lines was delayed. No extension of plantations was made during the year. Their area amounted to 3,504 acres, of which 2,420 were fuel plantations. Sales of sandal wood realised 38,934 *l.*, or at the rate of over 38 *l.* a ton. Mysore.

In Coorg the area of State forests at the end of 1877-8 was 295 square miles. The chief work done during the year was in clearing old demarcation lines and trying to keep out fires. Coorg.

As in 1876-7, the distress prevailing in the country diminished the forest operations throughout the Madras Presidency, by checking the demand for timber. There was also much sickness among the officers of the department. Receipts were less even than in 1876-7, the collections declining from 41,476 *l.* to 40,434 *l.* No forest Act having been passed, the forests were not strictly conserved, excepting a few teak forests in Coimbatore, and the Nilgiris and Malabar, and some fuel reserves in the different districts. A commission was appointed during the year to consider what tracts should be reserved in the Nilgiris as Government forests for the supply of timber and firewood. Most of the remaining forests will probably be reserved, and the tracts available for planting tea and coffee, or other cultivation, will be limited then to land outside the forest. Preservation of land in the Nilgiris for communal grazing purposes also formed the subject of discussion. Madras.

The area reserved for forests in the Bombay Presidency was increased by nearly 700 square miles during 1877-8, bringing the total to 6,234 square miles. In Sind, however, almost 5,300 acres were lost by erosion. Demarcation made considerable progress in many districts, but several of the special demarcating officers had to be transferred to famine duty. Some progress was made in opening out the woods of Kanara and the Dangs by means of cart roads. The scarcity and general cost of living tended to restrict the demand for timber in all divisions. The departmental collection of gallnuts used in dyeing and tanning operations was successful in the Southern division, where this description of forest produce constitutes an important item in the revenue, and one which is expected annually to increase. Apart from its financial advantages this system of collection seems to have ensured the cooperation of forest tribes in suppressing fires and in procuring for the State the full amount of produce available. Roadside tree planting is undertaken both by the Forest and by the Public Works Department, under the general supervision of the district revenue officers, with good results in most collectorates. The preservation of wood and vegetation was attentively considered in connexion with the prominence given by the late famine to the need of ensuring regularity in the water supply. According to the Finance and Revenue Accounts, the collections rose from 122,666 *l.* in 1876-7 to 126,163 *l.* in 1877-8. Bombay.

VI.

PUBLIC WORKS.

IRRIGATION AND CANALS.

Bengal.

CAPITAL outlay on irrigation works in Bengal, which has been steadily diminishing for some years past, was again lower in 1877-8 than in the previous year, and amounted to about 240,000 *l.*, of which nearly three-fourths was expended on the Soane Canals, and the remainder on those in Orissa and in Midnapore. The head works and main canals of all three schemes were for the most part finished, and only the distributaries remained to be completed. Two new irrigation schemes of a somewhat novel financial character were introduced during the year; one for the district of Sarun, on the basis of a local guarantee of the interest on the capital outlay; the other in Hooghly, on the basis of local contribution to the capital amount. An important project was submitted to the Government of India during the year for a navigable canal to connect the existing tidal canal in Hidgellee with the estuary of the Brahminee and the Cuttack system of canals. Its cost was estimated at 350,000 *l.*, and it will form part of a larger scheme for connecting the whole of the tidal channels of Orissa, the Chilka Lake, and the Ganjam district of the Madras Presidency with Calcutta. The total length of navigation from the Hooghly to Ganjam will be 400 miles. The cost is roughly estimated at 750,000 *l.*, of which 200,000 *l.* has already been spent on the Hidgellee Canal. Until such a canal is constructed, Orissa will never be safe from such calamities as that of 1866. No navigation scheme has yet been brought forward in Bengal of similar importance or calculated to yield such returns both direct and indirect.

N. W. Provinces.

Up to the end of 1877-8, the total capital invested on canals in operation in the North-Western Provinces amounted to 4,346,649 *l.*, of which 145,367 *l.* was expended during the year. The total area irrigated was 1,461,429 acres, which was larger than that of any previous year. The increase was caused by an enormous extension of the kharif area, owing to the complete failure of the monsoon. Unusually heavy rains decreased the rabi area, which was slightly less than half the total area of the two seasons. Work on the Lower Ganges Canal was being pushed on vigorously throughout the year.

Punjab.

Work on the Sirhind Canal, in the Punjab, was energetically carried on during 1877-8, as also was the work on the new line of the Western Jumna Canal, the remodelling of which had been determined. The Ravi and Sobraon branches of the Bari Doab Canal were prepared to receive the supply of water which was to be given to them so soon as the distribution channels should have been completed. Political reasons prevented much progress being made with the Swat Canal.

British Burma.

The Rangoon and Sittang Canal, by which the water route to Toungoo is rendered materially shorter and safer, was opened for traffic during 1877-8, but the lock gates were not quite completed.

Ajmere.

It was calculated that the total capital sunk in irrigation works in the Ajmere and Mhairwarra districts amounted at the close of the year 1877-8 to 133,027 *l.* The gross revenue derived from the tanks during the year was 5,630 *l.*

Berar.

Dry crops occupied about 99·8 per cent. of the cultivated area in Berar during 1877-8. About 50,000 acres were irrigated from wells. Work on the scheme for the water supply of Shegaon was begun in August 1877, but was afterwards stopped, owing to further information regarding details being required by the Government of India.

Mysore.

Owing to the famine in Mysore, all ordinary irrigation works not adapted for famine labour were stopped in September 1877. The outlay for 1877-8 was slightly less than that for 1876-7, but largely in excess of that for any previous year since 1869-70.

Madras.

It has not yet been practicable to present a satisfactory statement of the actual area under irrigation in the Madras Presidency, and of the amount of enhanced land revenue which, according to the best available means of calculation, ought fairly to be placed to the credit of irrigation works.* On the Godavari Delta system, which when completed will irrigate about 610,000 acres, the sum of 22,999 *l.*

* Approximate returns have recently been furnished by the Madras Government, and more accurate statistics are shortly expected.

22,999 *l.* was expended during the season of 1877-8, making a total expenditure of 787,778 *l.* from the beginning of the works. Of the 518 miles of canal in the Delta that will be ultimately navigable, 442 miles had been completed. On the Kistna Delta, which, when completed, will irrigate about 470,000 acres, the total expenditure up to the close of 1877-8 was 484,055 *l.*, of which 7,789 *l.* was spent during the year. Out of 321 miles of canal proposed for navigation in this Delta, 267 were open for traffic. The Cauvery Delta system, which is the largest in the Madras Presidency, irrigated nearly 800,000 acres during the year. The Buckingham Canal, under construction from famine labour, gave employment to large numbers of the distressed people of Nellore. Through communication with Cocanada, *viâ* the Commanur Canal, was likely to be established about June 1879. The Junction Canal, passing through the Presidency town, and linking the Buckingham Canal with the Southern Canal, was also under progress as a relief work, and at the end of the year was all but ready to be opened for traffic. The Madras Irrigation and Canal Company had up to 1875 been unable to obtain sufficient revenue from their canal to cover the working expenses; but the impetus given to irrigation by the failure of the monsoon rains in 1876-7 raised the revenue to 24,743 *l.* in that year. In 1877-8 the demand for water fell again, though the area irrigated, viz., 5,918 acres, greatly exceeded that of any year prior to 1876-7, and the revenue amounted to 14,913 *l.* IRRIGATION AND CANALS.

In the Bombay Presidency, 15 of the most important irrigation works undertaken or continued during 1877-8 were, in great measure, executed by means of relief labour. The operations of the year in the Deccan comprised the maintenance of 21 new works open for irrigation, and commanding an area of 244,137 acres. Extensions of these works, commanding an area of 77,602 acres, were taken in hand, as well as 15 new projects, designed to command 590,000 acres, and two storage tanks. The experience of the seasons in 1876-7 and 1877-8 will probably stimulate the cultivators of the Deccan to avail themselves more rapidly of the facilities for irrigation within their reach than has hitherto been the case. In Sind, the work of repairing and strengthening embankments and cleaning out beds, was particularly costly in 1877-8, owing to the fluctuations in the Indus. New works were carried out to a considerable extent on the more important systems of canals. Bombay.

As regards the eight Guaranteed Railways in India, the principal statistics relating to each line are given in the following Table:— GUARANTEED RAILWAYS.

NAME OF RAILWAY.	Length open on 31 Dec. 1877.	Passengers (excluding Season Ticket-holders) in 1877.	Goods Traffic in 1877.	Gross Receipts in 1877.	Gross Expenses in 1877.	Net Earnings in 1877.	Capital Outlay during Year ending 31 March 1878.	Total Capital Outlay to 31 March 1878.	Persons Killed during 1877.	Persons Injured during 1877.
	Miles.	*No.*	*Tons.*	£.	£.	£.	£.	£.	*No.*	*No.*
East Indian - - - -	1,503¼	7,318,901	3,008,304	4,065,563	1,295,053	2,770,510	157,980	30,730,968	92	111
Eastern Bengal - - -	159	1,864,490½	453,522	399,361	157,442	241,859	17,581	3,111,894	15	7
Oude and Rohilkund - -	543¾	2,753,772	634,067	434,180	227,420	206,760	160,864	5,674,501	21	16
Scinde, Punjaub and Delhi	663½	2,754,709	839,615	902,584	518,639	383,945	-34,578	10,533,468	28	26
Madras - - - - -	857	2,625,139	989,039	919,902	545,179	374,723	412,131	10,437,076	78	45
South Indian - - -	599½	4,047,615	387,371	309,853	159,432	150,421	229,053	3,988,674	15	24
Great Indian Peninsula -	1,280½	3,999,292	1,514,727	2,909,025	1,381,393	1,527,632	342,939	23,134,537	88	102
Bombay, Baroda, and Central India.	421½	4,435,101	585,683	714,900	300,055	414,845	-7,800	7,769,745	15	24
TOTAL - - -	6,028	29,799,019½	8,412,528	10,655,308	4,584,613	6,070,695	1,278,170	95,480,863	364	359

Further information about the operations of these lines is contained in the Annual Reports of the Government Director of the Guaranteed Indian Railway Companies that have been presented to Parliament. The only additions made to the length of the lines during the year 1877 were 125¼ miles opened for traffic on the northern extension of the South Indian Railway, and 4¾ miles of the branch to Pali from the Bombay, Baroda, and Central India Railway.

As regards State Railways in the several provinces of India, the following particulars may be given:— STATE RAILWAYS.

In May 1877 the Northern Bengal, Tirhoot, Nulhattee, and Calcutta and South-Eastern State Railways were made over to the control of the Government Bengal.

STATE RAILWAYS. of Bengal, in pursuance of the policy by which the local government becomes responsible to the Imperial Government for interest on the capital expended on reproductive works. The Northern Bengal State Railway, which runs, with only a break at the crossing of the Ganges, from Poradah on the Eastern Bengal Railway to Julpigoree, was formally opened in January 1878. An extension from Julpigoree to Siligoree, near the foot of the Darjeeling Hills, was opened for goods traffic in June 1878. The railway serves some of the richest districts in Bengal, and is expected to carry a heavy traffic in tobacco, seeds, jute, and tea.

N. W. Provinces. Considerable progress was made during 1877-8 with the scheme for a light railway system in the North-Western Provinces, to connect important centres, facilitate trade, and be a means of throwing supplies into the remoter districts in case of need. The Hathras-Muttra line was in full working order, and realised a profit during the year of more than four per cent. on the capital (about 100,000 *l.*). The Dildarnagar project was under construction; and work in connexion with the rest of the network of lines was in progress.

Punjab. The Indus Valley (State) Railway was nearly ready within the year 1877-8, and the exceedingly difficult and important work of the bridge over the Sutlej was successfully completed. The broad gauge line of the Punjab-Northern (State) Railway was opened to Jhelum since the close of the year, and the extension to Rawalpindi was being vigorously pushed forward.

Central Provinces. On 7 November 1877, the whole line of the Wardha Valley (State) Railway, from Wardha Junction on the Great Indian Peninsula Railway to Warora Colliery, was opened to the public. Only 18 miles had been in working order at the beginning of the year. The addition brought the total length to 45 miles. The line was worked throughout the year by the Great Indian Peninsula Railway Company. Surveys for the extension of the Nagpur and Chhattisgarh line to Kaliampur (121 miles) were completed, and the construction of the line has since been begun.

British Burma. In British Burma, on 1 May 1877, the railway from Rangoon to Prome was opened. Its length is 163 miles. Suburban lines, estimated to cost 40,000 *l.*, are still required to enable goods to be carried direct to warehouses, mills, and wharves; and the extension of the line to Ailanmyo, on the frontier, was under consideration, as also was the important project of a railway from Rangoon to Toungoo. The need of this line for military purposes cannot fail to be duly recognised, when it is considered that at present a journey from Toungoo occupies from 15 to 20 days; that it is only practicable in boats of very light draught, and that the cost of carriage is consequently enormous, while the length of the proposed line of railway is only 176 miles, 60 miles of which will pass through fertile, cultivated tracts of country, at present without any good means of communication either by land or water. The trade with Karennee and the Shan States, which the railway would stimulate and attract, rose from 239,310 *l.* in 1875 to 317,264 *l.* in 1877, and is said to be capable of indefinite extension.

Berar. From 1 April 1877 the Khamgaon line was handed over to the Great Indian Peninsula Railway Company to work and maintain on a scale of graduated percentages of gross receipts. During the calendar year 1877 the net profits were about $4\frac{2}{3}$ per cent. on the capital outlay of 48,000 *l.* The Amraoti line was kept open throughout the year, and worked and maintained by the Great Indian Peninsula Railway Company agreeably to the terms of the new agreement for working the Berar lines. Its net profit during 1877 was equivalent to 12 per cent. on the capital outlay of 43,000 *l.*

Mysore. The Mysore State Railway had long been projected, and was even partially laid out ready for a beginning; but it was not till 1 September 1877 that this extensive work was actually started. During the rest of 1877-8 it continued as the main famine-relief work of the province.

Bombay. During 1877-8 the Dhond and Manmad chord line (145 miles long) was undertaken and completed, thereby saving 115 miles of distance, and two journeys up and down the Ghat passes of the Sahyadri range. The Great Indian Peninsula Company work the Nizam's branch lines, the three Berar State railways, and the Dhond and Manmad line. The maintenance of the first-named railway was also undertaken by this company. The Berar State railways were worked on the same system as in the previous year, with the exception of the Wardha Valley line, for which a graduated scale of percentages

centages on receipts was substituted as the mode of remuneration for the former plan of payment by the mileage open and train miles run. Both the Dabhoi line belonging to the Gaekwar and the Patri State line were worked by the Bombay, Baroda and Central India Railway Company. The Ahmedabad and Palanpur section of the Western Rajpootana line was begun. Surveys were made of alternative routes between Sind and Bombay, Baroda and Central India Railway, as well as of proposed lines in Kathiawar. As the latter form a system connecting the interior of the Peninsula with Bhaunaghar and Wadhwan, they will probably be carried out to some extent by the chiefs. The survey of the Hubli and Belari line was completed, as was that of the Carwar and Hubli Railway. STATE RAILWAYS.

Outlay on district roads in Bengal amounted during 1877-8 to 316,674 *l.*, less than 2½ per cent. of which was expended by officers of the Public Works Department. These works consisted chiefly of ordinary repairs to roads, and metalling and bridging the existing main lines of communication. Measures were taken to ensure that the district road committees should expend a fair proportion of their funds on village communications, as the improvement of village roads brings home to the people the benefits which they derive from the levy of the road cess. ROADS AND BRIDGES. Bengal.

Considerable progress was made during 1877-8 in effecting permanent improvements on the Assam trunk road, more especially of a section on the Bengal side of the Brahamapootra. This section connects the Dhubri with the main line through Cooch Behar. Assam.

Roads maintained by the Public Works Department in the Central Provinces in 1877-8 measured 1,260 miles, namely, 715 miles of bridged and metalled roads, 374 miles of road bridged but not metalled, and 171 miles of road neither metalled nor bridged. Expenditure on the principal roads under construction during the year amounted to 37,382 *l.* Central Provinces.

Owing to want of funds in British Burma, but little progress was made in the construction of feeder roads and of a supplementary road to take the place of 108 miles of the old Prome road now occupied by the railway. British Burma.

In consequence of the long-continued drought, the heavy traffic, and the heavy rain that afterwards fell, the condition of many of the roads in Mysore was extremely bad during 1877-8. Advantage was therefore taken of the necessity for extensive repairs by employing destitute people on road work. Mysore.

Thirty miles of the new Pulney Ghat in the Madras Presidency were, during 1877-8, made passable for cattle traffic. Madras.

In the Bombay Presidency the number of roads taken in hand during 1877-8, either as new works or for improvement, was 143. In nearly every collectorate of the Deccan and Western Carnatic some road of importance was completed. A system of railway feeders in Kaira, the Panch Mahals, and Rewa Kanta, was being pushed forward, to the great advantage of the trade in these districts. Work on the Krishna bridge at Udgaon, which, when finished, will be the longest stone bridge in India, was advanced. The iron bridge across the Tanna creek was opened for traffic, and the Hope bridge at Surat was raised a little higher than was indicated in the original design. Bombay.

Construction of the Madras harbour made good progress during 1877-8, notwithstanding the vexatious difficulties by which the works were for several months retarded. These difficulties were chiefly caused by accumulations of sand. From January 1878, however, progress was very satisfactory. The works were severely tried by the cyclonic storm of May 1877, but they suffered no damage that was of any importance; scarcely any settlement afterwards occurred in the work at either pier. MADRAS HARBOUR WORKS.

Paumben Channel was used for the first time by a vessel of the Royal Navy, H.M.S. *Rifleman*, of 600 tons; she passed through on 21 October 1877, on her way from Bombay to Trincomallee. The British steamer *Annie*, also passed through subsequently on three occasions. Several years ago a vessel of over 1,000 tons went through the channel, but it requires a very favorable combination of weather and tide for ships of such a size to attempt the passage. PAUMBEN CHANNEL.

LIGHTHOUSES. British Burma.

During very severe weather in August 1877, the Krishna Shoal Lighthouse on the south coast of Pegu in British Burma, was swept away, seven men losing their lives by the accident. Not a vestige of the structure was ever found; nor has the real cause of the calamity been discovered. This lighthouse was of iron, standing on seven piles, and was built in 1868-9 at a cost of 16,000 *l.* Its place has since been occupied by a light-vessel. A special and minute examination was made in January 1878 of all the eight lighthouses of the province, and they were reported to be in a highly satisfactory and efficient condition.

Madras.

Lights on the coasts of the Madras Presidency underwent no changes, and were maintained in the state of efficiency during 1877–8. The erection of the lighthouse at Vakalapudi, in substitution for the light at Cocanada, advanced nearly to completion.

MARINE SURVEYS.

Owing to the want of an efficient sea-going steamer, marine survey work in 1877-8 had to be carried on by means of boat parties, two of which were employed during the year. The new steamer was being constructed as rapidly as possible in the Bombay dockyard, but was not likely to be finished till the end of 1880. A survey of Ratnagiri, including Mirya and Kalbadevi bays, was begun in November 1877 and completed in March 1878; and during the six months from October to April a detailed examination and a survey were made of the Paumben Pass and its approaches. Cochin, Beypore, and Calicut were visited, and important additions and corrections were made in the existing charts of those ports. An inspection was made of the ports on the Malabar and Coromandel coasts visited by the steamers of the British India Steam Navigation Company, and reports were submitted regarding the requirements of the principal ports. Many new charts were issued during the year, and also many hydrographic notices and notices to mariners, new editions of the list of lighthouses and light vessels, and of the catalogue of original documents in the Marine Survey Office, and the annual return of wrecks and casualties. An examination of 11,787 charts in store at the Bombay dockyard proved that 10,243 were useless; they were therefore destroyed, while the remaining 1,544 were made suitable for issue by corrections up to date. The cost of the department during the year 1877-8 was 13,829 *l.*

WRECKS AND CASUALTIES.

The return of wrecks and casualties in Indian waters for the year 1877 shews that 25 British vessels were wrecked, 5 French, 2 American, 4 Arabian, and 29 Burmese and Indian native craft, or a total of 65 ships of 26,847 tons, and a loss of 138 lives. Casualties occurred to 80 British vessels, 5 French, 1 American, 1 Austrian, 1 Spanish, 1 Portuguese, 2 Arabian, and 7 Indian native craft, or, in all, to 98 ships, with a loss of 4 lives. There were four cases of total loss by fire. Four wrecks occurred on the east coast of Africa, within the limits generally included in the wreck review. Two of these wrecks took place five miles south of Cape Guardafui on the north-east coast of Africa, involving the total loss of the *Meikong* and the *Cashmere.* The *Meikong,* a French mail iron-screw steam, of 2,123 tons register, belonging to the Compagnie des Messageries Maritimes de France, while on a voyage from Galle with 1,000 tons of general cargo, bound to Aden, stranded at midnight on 17 June 1877, and vessel, cargo, and 4 lives were lost. The British Indian Steam Navigation Company's screw-steamer *Cashmere,* of 676 tons register, while sailing from Zanzibar to Aden, with a cargo of 450 tons of ballast, coals, and stores, stranded at 8 p.m. on 5 July 1877, close to the wreck of the *Meikong,* and vessel, cargo, and eight lives were lost. The wreck that involved the greatest loss of life was that of a native vessel, which was stranded at the mouth of Onjal Creek in the Gulf of Cambay, owing to the master's gross ignorance of the coast; 48 persons were saved, while 63 perished. Native craft are represented to be, many of them, totally unseaworthy, and ill-found in every way; condemned ships are purchased by natives, patched up, and sent to sea; in some instances there are no charts or compasses on board, while the men in command have no knowledge of their use.

CALCUTTA PORT TRUST.

The Administration Report for 1877–8 of the Commissioners for making Improvements in the Port of Calcutta, deals (1), with the carrying out of the works of port improvement, and (2), with the conservancy and management of the

the port within port limits. A separate Report has been submitted on the management and control of the Hooghly Floating Bridge. CALCUTTA PORT TRUST.

(1.) *The Port Trust.* Up to 31 March 1878, the Commissioners had spent upon works of port improvement 793,165 *l.*, and the debt to Government amounted to 493,048 *l.*, while the gross profits of the works were 297,901 *l.* During 1877-8 the expenditure on improvements was 71,939 *l.* More work was done by the dredging vessels than in any preceding year at very little more cost, the quantity raised being 3,076,000 cubic feet, and the net cost, after deduction of the earnings of the barges in towing, being only 1,086 *l.* From jetties the net revenue was 37,462 *l.*, or more than double the previous year's amount, the increase being due entirely to the number of vessels discharging import cargo. So great was the demand for accommodation that vessels wishing to load at the jetties could not always be allowed to do so, and there was an actual falling off in the receipts on account of exports. A reduced scale of jetty charges was proposed and sanctioned, taking effect from 1 August 1878. Jetty accommodation is being rapidly extended. Complaints as to the alleged discouragement of the building of cargo-boats by reason of the construction of jetties and other port works were proved to be groundless, the number of such boats actually plying in 1877 being greater by 894 than before the jetties were built, while many more boats were under construction. Gross receipts from the inland vessels wharves (including the tramway), reached 54,914 *l.*, and those from the Strand Bank lands 14,381 *l.*

(2.) *The Port proper.* At the close of 1877-8, the value of the mooring, boats, &c., made over by Government, stood as a permanent loan to the Commissioners of 176,500 *l.*, carrying 4½ per cent. interest. Income during the year was 69,087 *l.*, and expenditure 47,084 *l.*, giving a net revenue of 22,003 *l.*, from which must be deducted a sum of 7,979 *l.* remaining to be paid for sales of cargo recovered from the wreck of the "Asia." Thus the true balance was 14,024 *l.*, against 8,674 *l.* in 1876-7, and 562 *l.* in 1875-6. This favorable result was due to the extraordinary influx of vessels to the port in connexion with the Madras famine. No fewer than 1,372 vessels, of a gross tonnage of 2,056,944, entered; while 1,322, with a tonnage of 1,988,987, left. Of the 726 steamers that entered 171 were engaged in the Suez Canal trade, 331 in coasting and Eastern trade, and 224 were famine transports. Only eight casualties occurred in the performance of 9,710 operations of mooring, hauling, docking, &c., the 1,372 vessels that entered. Two fires occurred on shipboard and three on the river bank, but all were got under without serious loss. The Commissioners realised for Government, on account of pilotage fees, buoyage, and lightage, hospital dues, &c., the sum of 147,534 *l.*, the payment to them for this service being only 350 *l.* Attention was drawn by the health officer of the port to the increasing number of corpses floating in the river within the precincts of the port. It was found that this evil was due to the practice of poor Hindus, above and below port limits and along the nullahs that fall into the Hooghly, throwing their dead into the water to avoid the cost of cremation. Measures for the prevention of this offence were accordingly adopted in the Burdwan and Presidency Divisions. Various proposals by the Commissioners for improving and maintaining the channel of the river within port limits, for reclaiming the Howrah foreshore, and for carrying out a scientific survey of the Hooghly bed, remained under consideration after the close of the year.

It appears from the Bombay Port Trust Report for 1877-8, that owing in part to competition and to consequent reduction of rates, the receipts from wharfage and tonnage did not rise in the same proportion as the quantities of goods, and were in fact less then they were in 1875-6. The figures since 1874-5 are respectively 61,885 *l.*, 69,249 *l.*, 62,555 *l.*, and 67,297 *l.*, shewing a very marked fall in 1876-7. But this was partly due to the great increase of tonnage having occurred in grain, seeds, and coal, the articles on which the rates were specially low. The average charge in 1877-8 works out only about 6¼ annas per ton, against 8¼ annas in 1874-5. The gross revenue from all sources rose from 148,444 *l.* in 1876-7 to 172,088 *l.* in 1877-8, the expenditure from 72,842 *l.* to 76,449 *l.*, and the net profits from 75,602 *l.* to 95,639 *l.* BOMBAY PORT TRUST.

BOMBAY PORT TRUST.

95,639 *l.* A large increase of 167,255 tons in the imports of the year points to a large increase in the number of vessels entering the port, and it is accordingly found from the Master Attendant's Report that 1,018 vessels, aggregating 1,093,828 tons, came into the harbour in 1877-8, as against 815 vessels, aggregating 870,284 tons, in 1876-7; the number of sailing vessels rose from 265 to 305, and of steamers from 550 to 713. The condition of the pilot service was not altogether satisfactory; the men were, generally speaking, tolerably steady, but apparently from carelessness or ignorance they allowed too many accidents to occur; none of which, however, resulted in any serious damage. With a view to improving the service, probationers were employed in learning their duties under the running pilots, instead of serving as mates of the pilot schooners. In previous years a Government steamer had always been ready during the monsoon to render assistance to any vessel in distress outside the harbour, but it having been decided that the charge must be met by the Port Trust, the steamer *Dromedary* was therefore held in readiness for this duty during the monsoon. So great an improvement has, however, been made in recent years in lighting the approaches to the harbour, that it was doubtful whether it was absolutely necessary to incur the cost of this precaution. The Prince's Dock was advancing rapidly to completion, and the work was being well done. Under a contract made with Messrs. Sir William Armstrong and Company, amounting to 42,723 *l.* for the supply of hydraulic machinery, such as cranes, capstans, gates, swing bridge, sluices, &c., the first consignment was expected in Bombay in July 1878. The excavation of the interior of the dock progressed favorably, and was about half completed; the work was stopped several times during the last monsoon on account of the rain. Heavy pressure of work, brought about by the very large importations of grain, and by the arrival in the port of many vessels carrying railway materials, which had to be landed and sent up country with quick dispatch, necessitated on several occasions the employment of some of the officials by night and on Sundays.

MARINE.

In July 1877, it was decided that the whole of the marine establishments afloat and ashore, employed under the several governments and provinces, should be amalgamated into one Imperial service, to be designated Her Majesty's Indian Marine, and to be placed under two superintendents of marine, one at Calcutta and the other at Bombay.

The only Marine Act passed during the year was Act XIII of 1878, which provides for the recovery in British India of wages due to, and expenses incurred in respect of, certain seamen and apprentices. It amends ths Indian Merchant Shipping Act, 1875; and the Indian Ports Act of 1875 is also amended, so far as the salvage clauses are concerned.

Bengal.

At the end of 1877-8, the Bengal Pilot Service numbered 68 members, or two below the sanctioned strength; 43 belonged to the covenanted service, and 25 were licensed pilots. The scheme for the reorganisation of the service is said to have worked well. Seven leadsmen apprentices, selected from the training ships *Conway* and *Worcester* under the new system of recruiting the service, arrived in India during the year, and were posted to pilot brigs to learn their profession.

Madras.

Arrangements previously in force regarding the working of the Marine Department of the Madras Presidency were left undisturbed during 1877-8. The Native Passenger Ships Act, which came into force during the year, was soon well understood, and there was very little difficulty in carrying out its provisions. Attempts were made by the shipowners at Negapatam to evade the law, by resorting to the French Port of Karikal for carrying out the passenger traffic with British Burma.

Bombay.

The vessels attached to the Bombay station were, as usual, employed during 1877-8 on miscellaneous duties. The *Amberwitch* was engaged on telegraph service in the Persian Gulf, the *Dalhousie* on transport and relief duties, and the turret ships were in or near Bombay Harbour.

POST OFFICE.

Several additional postal facilities were provided in India during 1877-8. The total number of letters, &c., carried by the Post Office was 128,826,080, of which 115,089,336 were letters, 10,999,758 newspapers, 909,962 parcels, and 1,827,024 books, patterns, and packets. Only 667,170 out of the entire number

number remained finally undisposed of in the Dead Letter Office. The number of post offices was increased by 225, of letter-boxes by 120, and of village postmen by 363. At the close of the year there were altogether 4,107 post offices, 5,574 letter-boxes, and 2,313 village postmen. The numerical strength of the establishment was 28,992, against 27,496 in the previous year. Postal lines aggregated 57,963 miles, on 7,338 of which the mails were conveyed by railway, on 3,781 by mailcart horse and camel dâk, on 33,157 by runners and boats, and on 13,687 by sea. Evidence of the general appreciation of the conveniences of the overland parcel post is afforded by the fact, that the net revenue from this source rose to 9,728 *l.* from 7,888 *l.* in the previous year. POST OFFICE.

For the first time since the establishment of the telegraph system in India, the receipts of the Indian Telegraph Department in 1877-8 more than covered the working expenses, exclusive of the interest charges. A large increase occurred in the business of the department under every head, state and private, inland and foreign. The increase in both classes of inland messages was largely attributable to the famine in Southern India, and to the activity of the grain trade. During the year an important benefit was conferred on the public in the redemption of inland messages from forwarding charges. Paid telegrams increased from 1,109,036 in 1876-7, to 1,357,014 in 1877-8, of which 1,169,954 were inland, and 187,060 foreign. The miles of lines and wires (including cables) increased, respectively, from 17,840 and 39,780, to 18,210 and 42,796; and, in addition, 10,749 miles of wire, not the property of Government, were maintained by the department for the service of railway companies. Departmental offices rose in number from 234 to 239, and at the close of the year 484 railway telegraph offices were technically supervised by the department. Major General D. G. Robinson, R.E., the Director General, died at sea, near Aden, on 27 July 1877, and Colonel R. Murray, of the Staff Corps, has been appointed his successor. TELEGRAPHS.

At the end of 1876-7 the system of the Indo-European Government Telegraph Department embraced (1) the Persian Section of 792 miles of land line, and (2) the Persian Gulf Section, which included 1,716 nautical miles of submarine cable, and 676 miles of land line on the Mekran coast. The year 1877-8 was one of remarkable commercial depression and consequent diminution of telegraphic traffic. The Russo-Turkish war, and especially the long-continued interruption caused by the Turkish raid on Sookhoum Kaleh, materially affected the prosperity of the lines worked by the department. The interruption at Sookhoum Kaleh lasted for 126 days, but was at length overcome by the erection of an alternative line, 513 miles in length, between Ekaterinodar and Tiflis. The break occurred beyond the limits of the Indo-European Telegraph Department's lines; but that Department shared in the cost of renewing communication. On the departmental lines the interruptions were mostly caused by severe weather, and aggregated 3 days 9 hours 55 minutes, traffic being stopped on the Tehran-Bushire Section by all three wires being broken at the same time for 3 days 5 hours 55 minutes, and on the Persian Gulf Section by a 4 hours' interruption on the Mekran coast land line. As compared with 1876-7 the earnings in 1877-8 fell off by 25,000 *l.*, and amounted to 40,000 *l.* The working expenses were 80,000 *l.*, the net loss being, therefore, 40,000 *l.* To this loss must be added the interest on capital, the capital at the end of the year being about 1,150,000 *l.* It must, however, be remembered that the lines are maintained quite as much for political and administrative as for commercial purposes.

VIII.

MINERAL RESOURCES.

Mineral Resources. Bengal.

THE year 1877-8 was one of renewed prosperity for coal mines of Ranigunge in the Burdwan division of Bengal. Of the success of the Bengal Iron Works, so far as the production of iron goes, the Lieutenant Governor satisfied himself by personal inspection. The Susunia stone quarries in Bankoora are said to be now turning out an admirable quality of hard stone. No mines exist in the Chittagong division, though mineral soil is probably to be found in the hill districts, as it has been already found in Arakan. The demand for stone from Monghyr and the Sonthal Pergunnahs was still on the increase, and the development of this industry was largely due to the return of the main stream of the Ganges to Rajmehal. In the latter district leases of hills, on which it was proposed to form quarries, had been taken by the Calcutta Municipality and the East Indian Railway Company. Slate quarries are worked to a small extent in Monghyr, and talc is found in the hills of the Jamoee subdivision and in the Sonthal Pergunnahs, but at present no one is disposed to invest money in working it, and it is believed that the market is fully supplied from the mica mines in the north of Hazareebagh. There are no mines in the Orissa division. In the Chota Nagpore division, coal is found in each of the districts, but the mines of Singbhoom and Lohardugga were not worked during the year. There are seven coal mines in the Pachumba subdivision of Hazareebagh, but in only four mines were operations carried on. Of these four, by far the most important was the Kurhurbari mine, leased by the East Indian Railway Company from Government. The average number of men employed in this mine during the year was 4,500, and the total yield of coal was 308,386 tons. The shafts are, for the most part, shallow and entirely free from damp, and torches are used by the miners at their work. The coal fields of Ranigunge extend some few miles west of the Burrakuru river. Mica appears to have been worked at a profit in the Hazareebagh district. No successful attempt has been made in recent years to work the copper mines of Singhboom and Hazareebagh.

Assam.

The limestone quarries in the Khasi and Jaintia Hills of Assam, which had for many years been held on a monopoly by Messrs. Inglis & Co., by whom the trade was first developed, were about to be thrown open to the public. Most of the leases held by the company terminated at the close of September 1878. In June 1877 the Chief Commissioner submitted to the Government of India a proposition for breaking up the existing monopoly, and putting up the quarries to public auction, on such conditions as would prevent them being again secured by a single firm, and would restore the lime trade to the healthy footing of open competition. An application was received in January 1878 from a newly formed association, called the Assam Mineral Oils Company, for the grant of a concession of land and right to dig for petroleum in the neighbourhood of Jaipur, in the Lakhimpur district, where large deposits of this oil are known to exist, and where Mr. Goodenough's attempts to work it were made in 1868. This application was forwarded by the Chief Commissioner with a favorable recommendation to the Government of India. Many coal and limestone mines exist in the province, but there is no information regarding their production during 1877-8.

N. W. Provinces.

With regard to the Kumaun ironworks in the North-Western Provinces, there were many interruptions to continuous working during 1877-8, but the working in 1878, while it lasted, was an improvement on that of 1877. Cost of pig iron for materials only had been reduced from *Rs.* 2. 9 *a.* 3 *p.* per maund to *Rs.* 1. 13 *a.* (*i.e.*, from 7 *l.* per ton to 4 *l.* 18 *s.* 6 *d.*)

Punjab.

Very little information has been supplied regarding mines and quarries in the districts of the Punjab during 1877-8. Auriferous sand is obtained from the Kabul river, Nowshera, and the annual yield of gold is valued at 58 *l.*

Central Provinces.

At the Warora Colliery, in the Central Provinces, 40,786 tons of coal were raised during 1877-8. Three-fourths of the entire yield consisted of large coal suitable for locomotive engines. Much more coal might have been raised if

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the working had not been impeded by the presence of faults, the existence of which was not expected. The long-wall system was abandoned in November, owing to difficulty in keeping the workings open when a surface break occurred, and on account of the great friability of the coal generally. During the year 31,274 tons of large coal were sold to the Great Indian Peninsula Railway Company, realising, at 10 *s.* per ton, the sum of 15,637 *l.* For the balance of small and large coal, 2,862 *l.* was received from other railway lines and private companies. The year's operations gave a profit of 6,406 *l.*, or over 9 per cent. on the total capital outlay of 69,507 *l.* at the end of 1877-8. Samples of coal, iron-ore, limestone, and slack were sent to England in the previous year, and the mining engineer at Warora, Mr. Ness, while on leave in England, conducted a number of experiments for the conversion of the Lohara and Pipulgaon ores with Warora coal and Khandalla limestone into iron and steel. Some of the experiments turned out successfully, and further ones were still being prosecuted. MINERAL RESOURCES.

Little activity or success attended mining operations in British Burma, during 1877-8. The failure of a Rangoon firm to work the Mergui tin mines to any advantage necessitated the abandonment of the work early in the year. In 1876-7, only 458 cwt., valued at 1,082 *l.* were produced. It is doubtful whether, after the disappointing experience of Messrs. Steel & Co., European capital will again be risked in the district. Only 12 small tin mines were worked by the Chinese during the year at ground rents varying from 10 *l.* to 2 *l.* 10 *s.* each; but judging from the quantity of smelted tin exported, they seem to have met with some success. To Penang they sent 205 cwt., valued at 725 *l.*, and to Rangoon 482 cwt., valued at 1,737 *l.* Of these quantities, however, a portion belonged to the workings of the previous year. Besides the ground rent, the Chinese pay to Government a royalty of 5 per cent. on the market value of the tin exported. In the Akyab district explorations for petroleum was rewarded by the discovery of a flowing well, after boring had been carried to a depth of only 66 feet. The attention of capitalists had never been drawn to the subject of oil-wells until 1877, when several Europeans applied for prospecting grants, tenable for one year, over one square mile of country selected by each applicant. The deposits of coal in the Thayetmyo district again underwent a scientific examination, the result of which was only to confirm the opinion long ago reached that they are of little or no value. British Burma.

No soda was gathered from the Lonar lake in the Buldana district of Berar during the year 1877-8, as the deposits that had already formed were considered likely to be augmented in quantity and improved in quality by being a year longer in the lake. Berar.

In consequence of the famine, the production of iron in the Chitaldroog district of Mysore was stopped during 1877-8. The mines and smelting-furnaces are worked in a primitive way, and simply to meet local demands. Almost all the men who labour in them are very small cultivators, who grow about enough in a year of good harvest to supply only their own actual food, and who look to the extra earnings at the furnace as a help to make both ends meet. But just when their own crop failed, their furnace stopped too, and the places where iron mines and furnaces exist were generally worse off than the purely agricultural villages. Mysore.

Gold mining in the Madras Presidency became a subject of much interest during the year 1877-8. Attention was paid to the matter by private adventurers, more especially as regards the Wynad division of the Malabar district, where gold has been known to exist, and has been more or less profitably worked from time immemorial; and Mr. King, of the Geological Survey of India, sent in an official report on the gold prospects of the Wynad with a key map of the country. Nothing was settled as to the conditions on which leases should be granted, or sales conducted, for auriferous tracts of Government land; and there was also the question as to the claim of Government to demand payment by landholders, whether ancient Malabar hereditary proprietors, proprietors under the waste land rules, or ordinary ryots, in respect of gold found in their lands. It was considered necessary that a distinct policy on the subject of mineral rights and royalty with reference to the peculiar conditions of the Madras Presidency should be laid down by proper authority. The Government would at any rate have to protect themselves against loss. In the event of gold mining in the Wynad or elsewhere succeeding, a considerable Madras.

MINERAL RESOURCES.

number of people will be attracted to the gold-fields, and the consequent police and other expenses will be necessarily large. Permission was given to certain projectors to prospect pending the assignment of a definite area in due course, and pending decision as to terms of rent and royalty. Mr. King's opinion on the profitableness of exploration was somewhat unfavorable as regards alluvial deposits, but very hopeful in the case of quartz-mining. The Government of India had determined at the close of the official year to appoint a competent mining engineer to examine into the whole question of gold-mining prospects in Southern India. A company got up at Madras were understood to have entered into an agreement with the Raja of Kalahasti and the Zemindars of Kangundi and Punganur, all in the North Arcot district, for the purpose of introducing iron-smelting operations on their estates. No other mining industry of any great importance was being carried on in the Presidency. Iron and copper are found in several districts, but the quantity annually produced is insignificant. A little coal of inferior quality exists in the Godavery district.

VIII.

MANUFACTURES.

Cotton.

EXCESSIVE importations of Manchester goods were accompanied by the accumulation of the stocks of Indian mills, which had to be disposed of at any price, and most of the mills were compelled to work on short time, while some were closed, and wages were generally reduced. The fact that the mills have survived the crisis is considered a proof that the industry is essentially sound, and will eventually be prosperous. It still, however, has difficulties to combat. A native spinning and weaving mill has been set up at Shanghai, and will very likely be succeeded by others. This threatens serious competition, China being the principal foreign consumer of Indian twist. The exports of twist form about three-fifths of the total exports of cotton manufactures; the remainder consist chiefly of colored piece-goods sent from Madras to Ceylon and the Straits. Of 53 mills working in the country, 41 were in the Bombay Presidency, and three-fourths of these in the Island of Bombay. There are reasons for considering the higher numbers of yarns as unsuitable for Indian manufacture. The commoner kinds of short-stapled cottons can only be employed for the lower counts of yarn, say up to twenty-twos. For higher counts, a larger stapled cotton is required, and for counts above thirties an admixture of Egyptian or American is necessary. This of course enhances the proportionate price of the higher qualities considerably, and places it beyond the means of Indian mills. The outturn of the higher counts is also proportionately slower than that of the inferior kinds; and the inefficiency of the operatives is, further, a serious obstacle to the production of the finer yarns. The numbers generally spun in the Bombay mills range from fours to thirties. It will be long before any active competition with Manchester arises in regard to forties and higher counts. Should the import duty be taken off the finer English yarns, there probably would not be a greatly increased consumption in the Indian mills, though these yarns would probably be extensively used by handloom weavers. The cost of a mill is much greater in India than in England. With regard to the coarser qualities of goods, it is said that the Indian industry, if judiciously managed, must inevitably in time supersede Manchester goods in the Indian markets, and that, whatever may be the prospects of the export trade, there is a demand for internal consumption sufficient for double the mills now in existence.

Bengal.

Native cotton cloth merchants in Calcutta are adopting the system of selling on credit by means of travelling agents to consumers in the country. These agents correspond very closely to the travelling drapers who, in the Midland and other districts of England, drive a considerable trade, and succeed in selling their goods at very high rates, payable generally by instalments.

Punjab.

Cotton manufactures in the Punjab for 1877-8 were estimated to be valued at 1,653,924 *l.*

Central Provinces.

The Empress spinning and weaving mills at Nagpore in the Central Provinces were steadily working throughout the year 1877-8, and were the most costly and ambitious industrial undertaking in the province, employing a large number of factory hands, and a staff of European engineers, &c. There were 550 looms and 30,000 spindles at work; and during the year above a million and-a-quarter pounds of cotton were worked up into 718,550 lbs. of yarn, valued at 31,437 *l.*, and 420,584 lbs. of cloth, valued at 21,029 *l.*

Mysore.

In Mysore the cotton weavers were among the first to feel the pressure of want during the period of the famine, and among the last to recover.

Madras.

There are stated to have been 23 cotton mills during 1877-8 in the Madras Presidency, and the number of workmen employed on them was over 1,300. Private looms, or small works, employed 353,522 workmen. The estimated annual outturn of all works was 1,016,628 *l.*

Bombay.

During 1877-8 there were 41 cotton mills at work in the Bombay Presidency, and 31 of these mills were in Bombay and its neighbourhood. Only one mill was in course of erection. The total number of spindles at work was 1,104,134, together with 11,681 looms. Cotton to the amount of 220,656 bales

COTTON. was consumed. Steam-gins have been introduced into three districts. There were also nine steam-gins in Bombay, making altogether 2,531 in the entire Presidency. In the Native States, the number of steam-gin factories was the same as before, namely, 5 in Kathiawar, 2 in Rewa Kanta, and 15 in Baroda territory, where 646 gins were at work.

SILK. Bengal. Silk is the chief manufacture in most of the districts of the Burdwan division of Bengal. The year 1877-8 was rather a better one for this industry than 1876-7. In Midnapore, Messrs. Watson and Messrs. Payen & Co. have extensive establishments. In Burdwan, a certain amount of revival was awakened both in the silk and *tasar* markets, but in Bankoora and Beerbhoom the industry was declining. A new steam silk filature was opened at Plassy in the Presidency division, but silk in Moorshedabad had again fallen back to a depressed condition. With regard to silk manufacture in the Rajshahye and Coogh Behar division, there were 57 large silk filatures in Rajshahye, and 100 small private looms. The largest works employed 19,450 men and 500 women; the private looms about 3,000 persons. The annual out-turn of silk was about 4,000 maunds. The year 1878 was a better one for trade than the previous, but the market had again become dull at its close. It is calculated that 80,000 acres were under mulberry in this district. There is still a little silk manufacture in Bogra, where 60 looms employ some 480 workmen. There is a small export of *tasar* silk from Manbhoom in the Chota Nagpore division.

N. W. Provinces. Sericulture in the Dun continued, during 1877-8, to be prosecuted by the Government of the North-Western Provinces, not as a commercial venture, but as fostering an enterprise that might be profitable to the country. Owing to change of officers, and the want of a skilled resident manager, not much progress was recorded. The acclimatised worms kept healthy, and the weight of good silk obtained from the cocoons was considerable.

Punjab. Most favorable progress is recorded of sericulture in the Punjab during 1877-8. The silkworm is now being reared in the Gurdaspur, Kangra, and Hoshiarpur districts, and at an exhibition held in Gurdaspur in April 1878, the cocoons displayed were superior to any previously exhibited, while the exhibitors were more numerous than on any former occasion. Every inducement is being held out to extend the cultivation of the Chinese mulberry in these districts, as a means of assisting in the further development of the silk industry. Mr. Halsey (who has since died) distributed during the winter many hundreds of thousands of cuttings of the tree to all applicants. Arrangements have been made to carry on the factory established by that gentleman at Madhopur. Success attended experiments in the rearing of the *tasar* silkworm, although the drought of the summer unfavorably affected the worm. Some experiments were also carried on with Japanese silkworms sent to the Punjab from Bombay, but the result was entire failure.

Central Provinces. Altogether, there were 4,685 silk looms in the Central Provinces during 1877-8, employing nearly 10,000 workmen or independent artisans; and the estimated value of the silk manufactures was 53,684 *l.*

Bombay. Some Bengali silk reelers, who were engaged for a year at the Khandesh Farm in the Bombay Presidency, fulfilled their contract to instruct apprentices and farm servants in the art of winding and reeling fibre. As they had no practical knowledge of silkworm rearing their services were dispensed with. The heat of the weather in April and May 1877 destroyed numbers of the eggs reserved by the superintendent for experiments. A few worms of the Bengal *madrasi* species were obtained, and a small sample of good silk got from them. At Ganesh Khind the superintendent met with no success in his efforts to get silk in any great quantity from the ordinary *tasar* moth. The first lot of native cocoons seems to have been fruitful, but about 5 per cent. only of the caterpillars lived to spin; the second generation did not come to maturity.

JUTE. Bengal. The Calcutta jute mills during 1877-8 were not as flourishing and successful as they should have been, owing to discreditable management in many cases.

MISCELLANEOUS MANUFACTURES. Bengal. In 1875, at the instance of the Government of India, measures were set on foot in Bengal for the collection of information as to the various kinds of dye-drugs produced in the province. Reports on the subject were forwarded in 1877 to the Economic Museum at Calcutta, together with samples of dyes; and

and it was understood that a full report on the dyes of Bengal was being prepared. Lac manufactories in Paremba and Shahbazar, in the Burdwan Division, supply lac bangles to every part of Bengal. There are several lac factories in the Manbhoom district of the Chota Nagpore Division; *palar* and *kussum* trees, both of which yield lac in large quantities, are very abundant in the district. The industry, however, is a declining one, and the large lac factory at Dorundah in Lohardugga was, in 1877-8, the first to suspend operations. With regard to sugar, its manufacture is said to be increasing in the Jessore district of the Presidency Division. Improvements in the manufacture of sugar were effected during the year by Messrs. Thomson & Mylne, of Beheea, whose hand-mills are now used by the natives, not only in Behar, but in Jessore and other parts of Bengal. At Palamow, in the Chota Nagpore division, the local sugar manufacturers were using these hand-mills extensively, and their industry shewed signs of a rapid increase. A noticeable development occurred in the fish-curing trade at Goalundo in the Dacca Division. A special bonded enclosure was formed within which curing is conducted upon an improved system; from 1,362 maunds of fish in 1875, and 4,835 maunds in 1876, the outturn of the depôt rose to upwards of 11,000 maunds in 1877. In the year 1877 there were 28,502 maunds* of salt fish despatched by rail from Goalundo to Calcutta;* and the Calcutta health officer considered the fish turned out from the curing depôt at Goalundo was far superior to that cured on the old native method.

MISCELLANEOUS MANUFACTURES.

Manufactures in Assam are quite insignificant, and very little information is able to be procured regarding them.

Assam.

Efforts were being made to improve the system of registration of trades and manufactures in the towns of the Punjab. The returns for 1877-8 give the number of manufactories in the province as about 450,000, employing a million and a quarter of workmen. Under pashmina shawl goods there was a further decline, in keeping with the diminished imports of the raw material.

Punjab.

The industry of British Burma is almost exclusively devoted to agriculture, and the manufactures are comparatively insignificant, though in some respects increasing, and, in many instances, by no means devoid of artistic merit. Cutch is almost the only article manufactured for export; but there was a slight falling off in its manufacture during 1877-8. At Rangoon, Mulmein, Akyab, and Bassein, there are numerous steam rice-mills and saw-mills for cleaning rice and converting timber for export.

British Burma.

In Mysore and Coorg, manufactures are on a small scale and mostly produced to meet the demand of the local market.

Mysore and Coorg.

Experiments were made during 1877-8 in the Madras Presidency, as to manufacturing paper from the prickly pear plant. Collectors of the districts in which country paper was known to be manufactured, were asked to make experiments, and to report on the suitability of the plant for the purpose. Inquiries went to shew that the preparation could be effected, but not with a prospect of profit.

Madras.

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* 1 Indian maund = 82⅔ lbs.

IX.

TRADE.

SEABORNE TRADE.

A PROMINENT feature of 1877-8 was the great importation of silver, which was partly caused by the low rate of exchange, and partly connected with the suspension of Council drafts during a portion of the year, and which had the effect of making the excess exports of the total trade unusually low.

The following Table gives a comparative view of the private trade for three years:—

	1875-6.	1876-7.	1877-8.
	£.	£.	£.
IMPORTS:			
Merchandise	37,112,668	35,367,177	39,326,003
Treasure	5,300,722	11,436,118	17,355,460
TOTAL IMPORTS	42,413,390	46,803,295	56,681,463
EXPORTS:			
Merchandise	58,045,405	60,961,632	65,185,713
Treasure	2,115,144	3,942,580	2,155,136
TOTAL EXPORTS	60,160,549	64,904,212	67,340,849
TOTAL TRADE	102,573,939	111,707,507	124,022,312
Excess Exports of Merchandise	20,932,737	25,594,455	25,859,710
Excess Imports of Treasure	3,185,578	7,493,538	15,200,324
Net Excess Exports of Private Trade	17,747,159	18,100,917	10,659,386
Net Excess Exports of Total Trade (including Government transactions).	16,099,353	16,167,038	8,613,679

The next Table shews how far, during 1876-7 and 1877-8 (since the exchange became seriously disordered), the net export trade has been adjusted by importations of treasure and by Council bills (the latter being taken at 2 *s.* the rupee, as the trade figures are converted at that rate):—

	1876-7.	1877-8.
	£.	£.
Excess Exports of Merchandise (including Government transactions).	23,573,260	23,758,143
Excess Imports of Treasure	7,406,222	15,144,464
Council Bills (at 2 *s.*)	14,857,512	11,698,500
Total Treasure and Council Bills	22,263,734	26,842,964
Surplus or Deficiency of Exports	+1,309,526	−3,084,821

The distribution of the trade among provinces and the chief ports during 1877-8 was as follows:—

PROVINCES.		PORTS.	
	£.		£.
Bengal	55,614,368	Calcutta	55,366,684
Bombay	49,912,228	Bombay	49,906,055
Sind	2,055,056	Kurrachee	2,054,760
Madras	9,487,036	Madras	5,059,011
British Burma	6,953,624	Rangoon	5,140,057
£.	124,022,312	£.	117,526,567

In the first three cases the port specified absorbed nearly the whole of the trade of its province, and in the case of Rangoon the greater proportion, while in the Madras Presidency nearly half the trade belonged to ports other than the principal one. The above five ports together monopolised 94·76 per cent. of the total trade. Contrary to precedent, the trade of Rangoon exceeded that of Madras. The commercial importance of the former is increasing, while Madras is not well situated for commerce. Kurrachee had not begun to realise the expectation of its ultimately becoming a considerable port.

The

The value of the trade carried on with different countries in 1877-8 was as follows: United Kingdom, 75,933,542 *l.*; China, 16,821,971 *l.*; France, 6,597,230 *l.*; Straits Settlements, 4,084,369 *l.*; Ceylon, 3,567,088 *l.*; Italy, 2,304,945 *l.*; United States, 2,212,445 *l.* Next in order came Mauritius, Austria, Persia, Arabia, Turkey in Asia, Egypt, Australia, Aden, and the East Coast of Africa. England took 61·22 per cent. of the trade. The relations with England, in respect to merchandise alone, were for two years: 1876-7, imports 29,752,443 *l.*, exports 28,020,105 *l.*; 1877-8, imports 32,211,303 *l.*, exports 29,613,606 *l.* India, therefore, receives more goods from England than she exports to that country. Imports from China increased by nearly 320,000 *l.*, of which increase more than half occurred under the head of raw silk. The export trade to Italy appears to be enlarging steadily. An increase of about 100,000 *l.* took place in the imports from Persia of cotton, wheat, pearls, and dates; and a large amount of English chintz was exported to the Gulf. Exports to Australia also rose considerably, especially under the heads of castor oil and gunny bags. SEABORNE TRADE.

The imports of cotton twist and yarn were as follows for five years: 37,097,260 lbs., valued at 3,157,779 *l.* in 1874-5; 31,927,340 lbs., valued at 2,794,769 *l.* in 1875-6; 33,270,208 lbs., valued at 2,733,514 *l.* in 1876-7; and 36,194,125 lbs., valued at 2,850,403 *l.* in 1877-8. Thus, in 1876-7 and 1877-8 an increasing quantity was accompanied with a decline in value. Grey piece goods constitute the largest proportion of cotton manufactures. Colored piece goods shewed a material decline, but white goods a moderate increase; the former are subject to great competition with goods printed in India. Altogether, the imports of cotton manufactures, compared with those of the preceding and following years, were valued at 18,725,233 *l.* in 1876-7, and 20,172,716 *l.* in 1877-8. The quantity of raw silk imported into India is now in excess of the exports; it amounted in 1877-8 to 2,102,930 lbs., valued at 678,069 *l.* Including silk manufactures, the total silk imports were valued at 1,482,952 *l.* The consumption is principally in Burma, where the high prices obtained by agriculturists stimulated importation during the year. Imports of metals increased in 1877-8, owing apparently to a great fall in prices. The depressed condition of industrial enterprise affected the imports of machinery. The value of railway materials imported increased from 691,908 *l.* to 907,002 *l.*, the increase being chiefly due to the demands for rolling stock in connexion with the famine. Coal was imported to the extent of 601,257 tons, a greater quantity than in any previous year. The average price was more than a rupee a ton less than in 1876-7. A great quantity of grain and pulse was imported in consequence of the special demands of the year, principally rice and wheat from the Persian Gulf. Provisions also increased from 661,059 *l.* to 858,797 *l.*; a great proportion of these are dates from the Persian Gulf. Imports of salt have been as follows for a series of years: 835,354 *l.* in 1873-4; 755,771 *l.* in 1874-5; 600,934 *l.* in 1875-6; 430,890 *l.* in 1876-7; 401,365 *l.* in 1877-8. The trade in sugar is a very fluctuating one, as here shewn: 558,978 *l.* in 1873-4; 516,564 *l.* in 1874-5; 895,927 *l.* in 1875-6; 403,556 *l.* in 1876-7; and 798,036 *l.* in 1877-8. The cause of the rise in 1877-8 is believed to have been the high price of Indian sugar relatively to European quotations, coupled with a considerable demand for export to Europe, the cheaper Mauritius sugar being, in consequence, largely imported into India; the trade was also helped by the remission of the transit duty on the sugar produced in the North-Western Provinces. The declared value of liquors imported increased from 1,303,592 *l.* in 1876-7 to 1,401,559 *l.* in 1877-8 The increase of 1877-8 occurred under all heads. Spirits were not at all affected by the raising of the tariff in 1875. The reduction of the duty on still wines other than clarets may be expected to lead to a still further increase under the head of wines. Imports of hops, though small, are steadily increasing, and will do so with the increased production of beer in the Punjab and North-Western Provinces. The cultivation of hops in India has not so far been a practical success, except in Cashmere. The trade in oils consists mostly of kerosine oil from the United States. The quantity imported advanced from 439,123 to 2,817,969 gallons. This extraordinary increase appears to be attributable to the collapse of a combination of oil merchants in America, which had controlled the markets and prevented shipments abroad; but there was also

Imports:
Cotton twist and yarn.
Cotton manufactures.
Silk, raw and manufactured.
Metals.
Machinery.
Railway materials.
Coal.
Grain and pulse.
Provisions.
Salt.
Sugar.
Liquors.
Hops.
Oils.

SEABORNE TRADE.

increased production in that country, together with a large demand in India, where a greatly improved style of lighting in native houses and shops has lately prevailed.

Exports:

The number of chests of opium exported in 1877-8 was less by 4,050 than the number in 1876-7, but the decrease of value was proportionately much less, viz., 30,393 *l.* Exports of raw cotton exhibit a steady decline for some years past, as follows: 15,257,342 *l.* in 1874-5; 13,278,963 *l.* in 1875-6; 11,746,184 *l.* in 1876-7; 9,383,534 *l.* in 1877-8. The decay of this trade is due to the decreased consumption of the United Kingdom, the principal importing country, which during 1877-8 received less than 1½ million cwt., as compared with over 5 millions in 1871-2. From other countries of Europe there is a slightly increasing demand. On the other hand, the exports of cotton manufactures have been on a rising scale: 512,374 *l.* in 1874-5; 663,424 *l.* in 1875-6; 812,382 *l.* in 1876-7; 1,142,732 *l.* in 1877-8. Exports of raw wool fell off a little in quantity, but more in value, owing to a reduction of prices in England; in 1876-7 they were 24,056,767 lbs., valued at 1,077,372 *l.*; in 1877-8 they were 23,075,323 lbs., valued at 943,645 *l.* The trade in raw silk presents no encouraging prospects; it is less than it was 20 years ago, and, as already stated, the imports exceed the exports. There was a slight recovery in 1876-7 and 1877-8, owing to the failure of crops in Europe. China and Japan are formidable rivals to India in this trade. The export of oil-seeds was considerably stimulated in 1877-8 by the effect of the war on Russian trade, combined with good crops and the favorable rate of exchange; the value rose from 5,319,124 *l.* in 1876-7, to 7,360,284 *l.* in 1877-8. The Calcutta jute mills are, owing to discreditable management in many cases, not as flourishing and successful as they should be. The price of jute, however, advanced in 1877-8, in consequence of the unusual demand for bags for both the foreign and the coasting trade; and the export figures of the raw material and manufactures combined were 3,356,124 *l.* in 1876-7, and 4,289,241 *l.* in 1877-8. The enhanced value of rice consequent on the famine demands is apparent from the following statistics of the export trade: in 1876-7 there were 19,548,741 cwts., valued at 5,742,540 *l.*; in 1877-8 there were 18,211,388 cwts., valued at 6,889,362 *l.* Considerably more than half of the exports are from Burma; and the greater part of this rice is used for distillation or for conversion into starch. Of the 18 million cwts. exported in 1877-8, the United Kingdom took nearly 10½ millions. Of the whole quantity of rice imported into England all but half a million cwts. came from India. A great deal, however, of the rice imported into England is reexported. India has no cause to fear the competition of Saigon or Bangkok in the European markets, though they have monopolised the Eastern trade. Europe is practically supplied from India; the United States now import more rice than they export. The opening of the Northern Bengal State Railway will probably help to stimulate the rice trade of Bengal. The wheat trade expanded for some years up to 1877-8, but suddenly collapsed to about 500,000 *l.* in 1878-9; the values of the exports were 490,435 *l.* in 1874-5, 901,025 *l.* in 1875-6, 1,956,332 *l.* in 1876-7, 2,856,990 *l.* in 1877-8. In 1877-8 the trade was encouraged, among other causes, by the bad harvest in England; but as that deficiency was supplied by other countries as well as India, prices fell, and shipments became unprofitable; meanwhile the combined effect of the exhaustion of stocks and the occurrence of a drought in Northern India was to raise Indian prices to a level much higher than those ruling in England. The exports of Indian tea have risen in the following manner: 1,742,926 *l.* in 1873-4; 1,937,429 *l.* in 1874-5; 2,166,417 *l.* in 1875-6; 2,607,425 *l.* in 1876-7; 3,044,571 *l.* in 1877-8. The bulk of the trade is with England. No effort is made to secure the Australian trade; Australia at present draws her supply of tea altogether from China, and its value is nearly half that of the total exports from India. Injury from drought and disease affected the coffee plantations. The export of coffee in 1877-8 amounted to 1,338,499 *l.* England and France are the principal consumers; in the former the trade is weighted with an import duty of about 15 per cent. *ad valorem*, and in the latter with a duty equivalent to 3 *l.* 5 *s.* 5 *d.* per cwt., or nearly 100 per cent. *ad valorem*, which is still further increased by a heavy *surtaxe* when the coffee is imported indirectly. In the United States, strange to say, coffee in the berry is admitted free of duty. Under this head, again, there appears to

Opium.

Cotton, raw.

Cotton manufactures.

Wool, raw.

Silk, raw.

Oil-seeds.

Jute, raw and manufactured.

Rice.

Wheat.

Tea.

Coffee.

to be room for enterprise in opening a trade with Australia. With respect to the trade in raw sugar, the failure of crops in Cuba and in France led to speculation and high prices, followed by a reaction in prices and failure of crops in the North-Western Provinces. The exports were as follows:— 253,937 *l.* in 1875-6; 925,196 *l.* in 1876-7; 745,851 *l.* in 1877-8. One effect of the scarcity is seen in 1877-8 in the increased export of hides, which represented the death of 9,300,955 head of cattle, or two millions more than the annual average. The total exports of hides and skins amounted to— 2,998,683 *l.* in 1876-7, and 3,756,888 *l.* in 1877-8. Under the head of tobacco, a falling-off occurred for some years, the values having been 228,201 *l.* in 1874-5; 169,511 *l.* in 1875-6; 89,140 *l.* in 1876-7, 93,037 *l.* in 1877-8. It is anticipated that this trade will before long become one of importance. The experiment in growing and curing tobacco at Poosah appears likely to be successful, and the example was followed by another firm in Bengal. Indigo has fallen off in price during the last two years: the exports were 100,384 cwt., valued at 2,962,785 *l.* in 1876-7, and 120,605 cwt., valued at 3,494,334 *l.* in 1877-8. The foreign exports, on the whole, increase annually, but those to the United Kingdom appear to be diminishing. The trade has not apparently been affected by the competition of aniline dyes. Attention has lately been given to improvement in the manufacture.

SEABORNE TRADE. *Sugar, raw.* *Hides and skins.* *Tobacco.* *Indigo.*

The gross sea customs revenue of 1877-8 amounted to 5,042,850 *l.* Of this, 4,477,206 *l.* was duty on imports, being 306,259 *l.* more than the revenue of the preceding year. About a third of the increase occurred under the head of cotton duties, which advanced from 743,049 *l.* to 841,972 *l.* Nearly an equal amount of increase took place under salt, and under liquors there was an increase of about 25,000 *l.* The export duties (on indigo, rice, and lac) produced 565,644 *l.* against 605,080 *l.* in the previous year. The total drawbacks and refunds amounted to 96,083 *l.*

Customs revenue.

The number of vessels entered and cleared at Indian ports does not vary very greatly year by year; in 1877-8 the figures were 6,353 and 6,184. The average of entrances for six years (6,283) was identical with that of clearances. But the expansion of the carrying traffic appears from the steady annual increase of the aggregate tonnage, and also from the increased employment of steamers. During the period from 1874-5 to 1877-8 the average tonnage of ships entered in each year was respectively 2,434,929 tons, 2,629,923 tons, 2,791,884 tons, and 2,877,649 tons. Steamers entered have, during the same period, risen from 819 in 1874-5 to 1,123 in 1877-8. As might be expected from the nature of the trade, the number of vessels which enter in ballast considerably exceeds that of clearances in ballast. In 1877-8 there were 2,705 vessels entered with a tonnage of 712,781 tons, while 1,324 vessels cleared with a tonnage of 180,434 tons. Of the vessels entered at Indian ports the following adopted the Suez Canal route: 317 of 434,152 tons in 1873-4; 413 of 575,892 tons in 1874-5; 483 of 704,325 tons in 1875-6; 504 of 744,215 tons in 1876-7; 569 of 815,033 tons in 1877-8. The tonnage employed in the trade with the United Kingdom is half of the total tonnage engaged in the foreign trade of India. The nationalities of the shipping engaged in the foreign trade (taking entrances and clearances together) may be thus classified: British, 3,853 vessels of 4,352,380 tons; British Indian, 3,017 vessels of 418,774 tons; foreign, 1,517 vessels of 771,994 tons; native, 4,150 vessels of 211,231 tons; total, 12,537 vessels of 5,754,379 tons.

Shipping.

The coasting trade was unusually active in 1876-7 and 1877-8, owing to the special circumstances of those years. Imports of merchandise alone rose from 13,592,851 *l.* in 1875-6 to 19,534,007 *l.* in 1876-7, and 28,223,220 *l.* in 1877-8, and exports of merchandise rose from 14,794,549 *l.* to 21,258,514 *l.*, and 29,971,480 *l.* The total quantity of food grains transported to the famine-stricken districts by the coasting trade during the year 1877-8 was 1,161,990 tons, and the value 12,427,222 *l.* In the coasting shipping a decrease in the number of vessels was accompanied with a great increase in the tonnage, which was due to the employment of large steamers between Calcutta and Madras.

Coasting trade.

Frontier trade continued during 1877-8 to be registered at numerous stations along the 5,000 miles of border between British and Foreign territories, from Baluchistan on the west to Siam on the east. Particulars of the traffic are, however, very scanty. No information has been supplied regarding the land trade of

FRONTIER TRADE.

FRONTIER TRADE. Sind with Baluchistan and Afghanistan. The total value given for 1877-8 of the registered frontier traffic of the other border provinces of India with adjoining foreign countries is 7,738,199 *l.*, composed of 4,165,344 *l.* imports, and 3,572,855 *l.* exports. More trade was registered with Burma than with any other country, the value being 3,425,926 *l.*; Nepal came next with 1,687,126 *l.* Afghanistan trade is returned at 1,159,401 *l.*, but this amount represents only that carried on with the Punjab, no figures for the Sind portion having been furnished. The values of the trade with other countries were as follows:—Cashmere (including Ladak) 900,952 *l.*; Tirah and Bajaur 140,007 *l.*; Siam 126,693 *l.*; Tibet 102,025 *l.*; Sewestan 89,102 *l.* (but most of this trade was actually with Baluchistan); Munnipoor and Hill Tribes 74,116 *l.* The Bengal Government pointed out the difficulties in the way of efficient registration of external land trade, as the traffic crosses the border at a thousand different spots, and the exactions of registering officers are liable to have the effect of simply diverting the traffic into other routes. These objections, however, have since been overruled by the Government of India, the registration being of general, not local importance; and the authorities of Bengal and the North-Western Provinces have been ordered to concert the best scheme for registering the Nepal trade as accurately as possible.

ADEN TRADE. Aden Port is the centre at which European and Indian goods are exchanged for those of Arabia, Abyssinia, and East Africa. The settlement, being only eleven square miles in extent, has little trade of its own. With regard to the private trade during 1877-8, the imports were valued at 1,900,042 *l.*, including 189,815 *l.* in treasure, while exports were declared to the value of 1,405,888 *l.*, of which 169,168 *l.* consisted of treasure. Transhipment trade is not registered, but is calculated to have been about 2,000,000 *l.*, or about 300,000 *l.* more than that in 1876-7. Shipping increased both in number and weight of vessels. Out of 920 ships touching at this port, 693 belonged to Great Britain. As regards the internal trade with Yemen, imports and exports both increased over those of the previous year, but there was a decrease in the demand for water and fuel. Water can now be procured nearer the settlement than formerly was possible. The coffee trade also will probably continue to decrease as more convenient outlets become available elsewhere. During the year 239,969 camel loads of produce from the highlands of Yemen were brought into the settlement.

X.

PUBLIC HEALTH AND SANITATION.

Health of General Population, Bengal.

General registration in the province of Bengal was, with some exceptions, carried on energetically during 1877 by district officers. The birth-rate arrived at was 18·20; the local government have directed that the attempt to register births, except in a few selected municipalities, be discontinued, and that all efforts be concentrated on conducting the system for the registration of deaths on an improved and matured plan. The average death-rate for 1877 was 17·96, against 16·40 in 1876; the increase was the more satisfactory from a statistical point of view, as in the preceding year a mortality of 34,173 was caused by the results of the cyclone; the greater portion of the increase occurred in the rural circles, where improved registration was most needed. Cholera as usual prevailed generally throughout Bengal, but the number of deaths declined from 196,590 to 155,305. Smallpox shewed less severity even than in the preceding year, the deaths numbering 8,088 against 10,746; as compared with other parts of India, Bengal suffers extremely little from this disease, in consequence apparently of the general protection of the people by either inoculation or vaccination; although the latter is gaining ground, the former is still extensively practised. The recorded deaths from fever increased from 561,530 to 711,037. While some part of the increase is doubtless due to improved registration, it was principally occasioned by increased prevalence and severity, which in many cases was attributed to the defective and impeded natural drainage of the country. In Burdwan and Beerbhoom the mortality from this cause was greater than in 1876; in the former a local inquiry shewed that the fever was a mild form of malarious intermittent, identical with the mild form of the so-called Burdwan fever, having a tendency to implicate the spleen and liver. During the last four months of the year a widespread outbreak of malarial fever prevailed in Midnapore. Its early appearance, rapid development, and long continuance were attributed to the September rainfall being much below the average, and to the sudden and great variations of temperature for which the cold season was remarkable. A medical officer who visited those parts of the district from which the most unfavorable reports were received, described the fever as an aggravated form of the ordinary intermittent common in autumn, and as differing widely from the epidemic fever, which invaded a large portion of the alluvial tracts of the district between the years 1871 and 1876. The statistics of bowel complaints are much invalidated by deficient registration, or the probable classing of many instances of this death cause under fever; there were recorded 58,962 deaths against 58,701 in the preceding year. The death-rate of Calcutta was 31·9 per 1,000, exceeding that for the previous year by 1·8. As usual, however, the rate is lower than it would be but for the number of sick persons who leave the town to die. Fever was abnormally prevalent in the city in the latter part of the year, but there was a decline in cholera mortality. The statistics continue to shew that the conditions of life in Calcutta are remarkably favorable to European residents.

Assam.

The vital statistics of Assam are so obviously incorrect that the ratios of mortality are not worth producing. Of 41,716 registered deaths 11,377 were attributed to cholera. In proportion to population Nowgong and Dibrugarh suffered most. Every district was afflicted with smallpox, and chiefly Luckimpore and Darrang. While the indigenous population of Assam suffer most severely from this disease, the imported coolie population on the tea-gardens are entirely exempt from it, owing to the care with which vaccination is carried out among them. The Government of India hope that under the energetic supervision of Dr. De Renzy sanitary affairs will make much more progress than they have yet done in Assam.

N. W. Provinces and Oudh.

This was the first year of the amalgamation of Oudh with the North-Western Provinces. Registration having been far more efficient in the latter than in the former, the aggregate result for 1877 possesses no value for comparison with past statistics, but the Sanitary Commissioner hoped that this disadvantage would be rectified in future. The united ratio of mortality per 1,000 was 19·67; in the North-Western Provinces alone it was 20·6, against 23·39 in 1876, and in Oudh

HEALTH OF GENERAL POPULATION.

17·1 per 1,000. In the 97 town circles the results were apparently much nearer the truth, giving a death ratio of 29·43, and a life expectation of a little more than 34 years. Cholera prevailed more mildly than in the preceding year. The disease appears to be endemic in the Benares division of the North-Western Provinces and the adjoining division of Fyzabad in Oudh. In 1877 the epidemic prevalence was principally confined to the country north of the Gogra river; of the total of 31,770 deaths 22,020 occurred in that region. The aggregate small-pox deaths declined from 40,730 to 36,022. The greatest mortality was in Mozuffernuggur, Moradabad, Bijnour, Bareilly, and Budaon, in all of which districts the disease shews persistent prevalence year after year. It was almost absent in any severe form from the eastern districts. The ratio of fever deaths was less than the mean of the previous five years, which is attributed by the Sanitary Commissioner to the unusual dryness of the season. This, combined with improved land drainage, led to a remarkable diminution of fever in the northern districts of the Doab. Cawnpore district still held the second place (next to the Tarai), which Mr. Planck can only account for by its having been brought most recently under the permanent operation of changed climatic conditions resulting from canal irrigation. In Lucknow city, of a death-rate of 45·27, 23·10 was due to fever. Mr. Planck thinks that as registration becomes more accurate, it will prove that there is a large fever mortality in the crowded cities of the province, and that some considerable portion of this mortality results from the prevalence of continued forms of fever. Deaths from bowel complaints were recorded in highest ratio in the Himalayan country of Kumaon and Dehra Doon, in Rohilkhund, and in the southern country of Hamirpur and Jhansi. This localisation is consistent with the experience of all former years.

Punjab.

The average rate of mortality in the Punjab during 1877, calculated on the census of 1868, was 20 per 1,000; but the Sanitary Commissioner estimates that 18 per 1,000 would more nearly represent the actual result of registration. For 50 of the principal towns the registration gave 33 per 1,000, according to a census taken in 1875–6. The year was an unusually healthy one; there were only 29 deaths from cholera. Smallpox deaths numbered 12,296 against 10,254 in the preceding year; of the total deaths 2,394 were among children under one year of age, 9,385 among those between one and twelve, and only 517 in the case of adults. Statistics of several years past make it evident that in those districts where vaccination has been readily accepted the mortality from smallpox has steadily declined. The Civil Surgeon of Umritsur states that a dangerous custom prevails in that city of taking through the streets in procession to some temples cases of smallpox on the ninth day of the eruption. Fever deaths fell from 351,286 to 219,281. This is attributed to the very greatly diminished rainfall of the monsoon, coupled with the absence of the usual river floods and lodgments of rainwater on the surface of extensive tracts of country. In deaths from bowel complaints there was also a great falling-off, from 27,271 to 17,664. Of 35,246 villages only 6,672 returned deaths from this class of diseases.

Central Provinces.

The birth-rate given for the Central Provinces in 1877 was 39·26, and the death-rate 23·91; the latter was 6·47 less than that of the previous year. The seasons were abnormal, and the year could scarcely be considered a healthy one, yet the climatic features were favorable in respect of diseases connected with extreme variations of cold and heat. Some Civil surgeons reported that they had seen no severe fever cases during the year. Deaths from cholera were only 3,418, being less by 16,706 than in 1876. The disease prevailed among the famine refugees who poured into the Saugor district from the North-Western Provinces and Gwalior. There were still fewer deaths from smallpox (2,768) than in the preceding year, but at its close, and subsequently, the mortality again increased. Fever deaths numbered 131,123; the fevers were invariably of malarious origin. Bowel complaints caused 14,867 deaths.

British Burma.

Registration of vital statistics in British Burma continued in a very backward state; but a good example to other district officers was set by Major Plant, Deputy Commissioner of Thyetmyo, who entered into the matter with great energy, and elaborated a plan which the Chief Commissioner has prescribed for general adoption. Cholera is always more or less prevalent in this province; the deaths from this disease in 1877 were 7,276. Though cholera was specially prevalent during the year, yet 13,936 villages out of

14,276 escaped, a fact very adverse to the theory of importation, and suggestive of local causes. The prevalence was, as in the previous year, very severe in the town of Akyab. HEALTH OF GENERAL POPULATION.

In the Ajmere and Mhairwarra districts 13,944 births were registered during 1877, or 1,800 more than in 1876. On a total population of 396,331, as enumerated in April 1876, the birth-rate equalled 35·18 per thousand. The number of boys born alive has in every year been reported to be much greater than that of girls. There were 9,057 deaths registered during the year, against 8,290 in 1876, the increase being attributed entirely to improvement in reporting. Cholera caused only twelve deaths. Smallpox committed terrible ravages, numbering 1,638 victims. Deaths ascribed to fevers were very numerous. Ajmere.

Registration in Berar has attained a very creditable position of accuracy, except in the Wun district, which is a very wild region, with small and scattered villages. In 1877 the average death-rate was 28·1, against 31·9 in 1876. Cholera deaths fell from 22,465 in 1875 to 3,583 in 1876 and 842 in 1877. There was a decided decline in the deaths from fevers and from bowel complaints, which in the first case numbered 34,453, and in the latter 10,543. On the other hand, the year was marked by a new epidemic of smallpox, which caused 6,380 deaths against 415 in the preceding year. There was a rise in the mortality from January to May, which was greatest in the two hottest months; a marked decrease in June, continuing throughout the monsoon season, and again an increase in November, when the cold season began. Berar.

In Mysore the registered birth-rate during 1877 was 4·75 per 1,000 of the population, according to the census of 1871. The death-rate was 48·10. These rates, however, are far from accurate, as the registration could not be properly carried out, owing to the famine. The year was one of terrible sickness and mortality. Of the total registered deaths 58,648 were ascribed to cholera, 55,934 to fevers, 33,781 to bowel complaints, 5,922 to smallpox, and 88,881 to other causes. On 19 January 1878 a partial census was taken with the special object of testing the loss of population from the famine. From the results obtained it was calculated that the population of the Province had diminished from 5,050,000 in 1871 to 4,100,000 at the beginning of 1878. Mysore.

Coorg was overrun in 1877 by emaciated wanderers from Mysore, among whom, very few of the 1,742 registered births occurred, but the greater number of the 8,108 deaths. Cholera carried off 1,066 persons, small pox 214, and fevers 5,845. Coorg.

The terrible effect of the famine was seen in a death-rate among the native population of the Madras Presidency of 53·2 per 1,000. The number of deaths registered was 1,556,312, nearly three times the average of the preceding five years. The cholera epidemic of the two preceding years continued to rage during 1877; the greatest mortality, however, was in the two first months, after which, with two interruptions, it declined to its minimum in December. There can be no doubt that the famine-stricken condition of the people made them peculiarly susceptible to this, as to other diseases. There was a serious rise in smallpox mortality. The crowding of the people together, combined with their recklessness of danger, tended greatly to the spread of infection. As was to be expected, the increased fatality of fevers and of bowel complaints was most marked. The deaths attributed to the former cause numbered 469,241, about double the mortality of any of the previous eleven years. Madras.

In the Bombay Presidency the rate of mortality in 1877 was greatly increased by the famine which raged throughout a large area. Besides the losses by death, the general health of the survivors was permanently deteriorated by the insufficient and indigestible food; and an indirect influence was also exerted, through the dearness of provisions, on the health of populations not immediately affected by the scarcity. Relief measures were greatly impeded by caste prejudices; in one case labourers refused to occupy some very good huts which had been erected for them, simply because they were made of the branches of a certain palm. As in Madras, the vital statistics were affected by a diminished birth-rate as well as by an increased death-rate. The former was 19·26, or 2·9 less than that for 1876. The latter was 38·79 per 1,000. The actual number of deaths increased from 366,660 to 627,708. Apart from the famine the year seems to have been a very unhealthy one. The cholera mortality (57,252) was the highest ever recorded, but its prevalence was probably to a great extent Bombay.

HEALTH OF GENERAL POPULATION.

connected with the physical condition and circumstances of the people. It reached its maximum in June, and after August it rapidly declined to the end of the year. Smallpox continued to rage epidemically, causing 27,369 deaths. Again the maximum was attained in March. Under fevers and bowel complaints, the two classes of disease most directly promoted by the famine, a vast mortality occurred, 336,865 in the former case, and 60,257 in the latter. In the capital the number of deaths rose from 20,783 in 1876 to 33,511 in 1877; and there were 2,550 fatal cases of cholera. The majority of the deaths occurred among those who were not permanent residents in the city; the crowding would not have been so injurious to health but for the insanitary condition of the town itself.

VACCINATION. Bengal.

The number of persons vaccinated in Bengal during 1877-8 was 1,284,027, which was less by 225,007 than the number in 1876-7. Of the total number, 52,861 belonged to Calcutta, and 294,613 were dispensary vaccinations. The latter being considered by the Government to be untrustworthy, all vaccinators attached to dispensaries and paid for by Government have been discharged. In the percentage of success there was likewise a falling-off. It was, in primary operations, 98·04, as compared with 98·18 in the previous year. Excluding dispensary statistics, the average ratio was 97·89. As far as age was recorded, 9·06 per cent. only of those vaccinated were infants under one year of age. The people object to have their children inoculated before they are at least six or seven years old, and they unfortunately apply the same principle to vaccination. At Pooree vaccination is strongly opposed, while inoculation is favored, and in many other localities opposition continues. In the districts of Hazareebagh, Sonthal Pergunnahs, and Monghyr, ex-inoculators and circle vaccinators worked in the same villages, and it is reported that the people to whom the former were known, had much greater confidence in them, and accepted vaccination more readily from them than from the latter. It is stated that Bankoora has enjoyed perfect immunity from smallpox for the last two years. This result is ascribed to the systematic way in which vaccination has been carried on since 1874, in which year the Act prohibiting the practice of inoculation was introduced into the district, and to the conversion of almost all the inoculators into vaccinators. Nearly every village has its ex-inoculator, who renews his licence every year, and practises vaccination under the same Hindu formalities and ceremonies as were used in the days of inoculation. Vaccination is now generally appreciated, and the district is almost completely protected.

Assam.

Vaccination labours under peculiarly great difficulties in Assam, owing to the strong objections dictated by superstition and ignorance, and also to the sparseness of the population. A large amount of work which does not appear in the returns, is, however, done among the coolies by the medical officers attached to the tea-gardens, and the beneficial consequences are so striking that, as Dr. De Renzy remarks, "even the dull apathetic Assamese intellect has yielded to its force, and the people have voluntarily brought their children to be vaccinated." There is no special establishment in the province. The work is done by native vaccinators attached to the dispensaries, and acting under the orders of the civil surgeons. The results shew what a very small fraction of the population is as yet protected. Of the total 17,085 persons reported to have been successfully vaccinated, no less than 7,667 belonged to one district, Kamrup. The success of vaccination in that district, Dr. De Renzy reports, is truly surprising, and does immense credit to Dr. Russell, the civil surgeon of Gowhatty. The Deputy Commissioner, referring to Dr. Russell's efforts in the cause of vaccination, reports that, "all the inoculators have been converted, "and an incalculable benefit has, through his energy and well directed zeal, "been conferred on the population of the district in all parts where too strong "religious prejudice has not barred the door." The Sanitary Commissioner was about to draw up a pamphlet on vaccination for dissemination among the people, and for use in schools.

N. W. Provinces and Oudh.

In the two provinces which have been recently combined under one administration the position of vaccination differs greatly. Among populations of 30¾ millions in the North-Western Provinces, and 12 millions in Oudh, the primary vaccinations were respectively 672,241, and 41,762. Infants vaccinated under one

one year old numbered 198,074 and 13,010. The per centages of success were 93·21 and 85·94. Successful vaccinations per 1,000 of population, were 19·40 and 2·74. In the Kumaon, Gurhwal, Tarai, and Dehra Doon districts the work continued to be thoroughly effected. In the rest of the North-Western Provinces the proportion of vaccination to the birth-rate is estimated at 48 per cent.; but in these provinces, apart from Oudh, there was a great advance on the operations of 1876-7. Several municipal committees have unanimously passed bylaws by which the practice of inoculation has been made a public nuisance. The deputy superintendent in the Benares division (Pandit Bishan Datt) is mentioned most highly for the energy and efficiency of his work. He has written a treatise, and delivers addresses on vaccination, and as he is himself a Brahmin, and has great influence among all classes, the cause is making great progress. The number of high caste Hindus who accepted vaccination in this division rose from 12,275 to 17,357. There is reason to hope that the new deputy superintendent in Oudh, who has long successfully superintended the Rohilkund division, will bring up the vaccination in that province to the standard of the North-Western Provinces. The Government of India have directed that an investigation be instituted in the North-Western Provinces with a view to determine the relation between smallpox deaths among children and the statistics of vaccination. The demonstration to the people of the value of the prophylactic must depend on the results shewn, which it is hoped will not prove unsatisfactory, whether owing to carelessness on the part of the working staff, or from any other cause. VACCINATION

During 1877-8 there were 373,577 persons vaccinated in the Punjab; the primary cases were 371,821, against 284,771 in 1876-7. The percentage of success was 98·81. Efforts to extend vaccination met with fair success, except in Rohtak, where much harm was done to the cause by the worthless nature of the work of incompetent local vaccinators in former years creating mistrust in the minds of the people. Great assistance was received from the Maharaja of Cashmere and the Raja of Mandi. Punjab.

With some exceptions no active opposition was manifested in the Central Provinces, but only in Sambalpur, Chindwara, and Betul could the people be said to welcome the vaccinators. The chief difficulty is in the larger towns and among the better educated natives. The number of primary operations during 1877-8 was 288,688; those performed on children under one year were 92,477, against a registered birth total of 290,859. The percentage of success was given as 94·53, but this is believed to be above the truth. Sores caused by bad lymph, or by the application of irritating substances or rubbing, are sometimes set down as true cowpox marks, and hence smallpox is erroneously said to follow successful vaccination. Central Provinces.

The work of vaccination is not in a flourishing condition in British Burma; district officers shew little interest in it. The number vaccinated during 1877-8 was 24,276, which was a falling-off from the number of the preceding year; and the percentage of success was only 82. Of the total number, 3,813 only were under one year of age. British Burma.

Owing to the extreme superstition of the people, the Ajmere and Mhairwarra districts are still scarcely at all protected against the ravages of smallpox. There was a falling-off in the number of vaccinations from 11,264 in 1876 to 8,419 in 1877, but the percentage of recorded success rose from 54 to 77. Ajmere.

The number of persons primarily vaccinated in Berar during 1877-8 was 97,010, and the percentage of success 81·7. It is estimated that of 88,907 children born during the year 38,721 remained unvaccinated. An inquiry has been ordered into the results achieved by vaccination in this province, with reference to the common assertion of the natives that when an epidemic of smallpox breaks out the vaccinated and unvaccinated suffer almost alike. Berar.

In Mysore the total number of vaccinations performed during 1877 was 101,980, against 96,242 in 1876; but the number of successful operations was only 84,558, or 84 more than the number in 1876. The increased number of vaccinations took place in the Nagar Division, where advantage was taken of the collection of many persons in relief camps, and where the vaccinators were not diverted to other duties as in the remaining divisions. The indifferent state of health of the people, and the fact that the lymph received from the depôt in England proved inert, are the causes to which a lower percentage of successful operations is ascribed. Mysore.

VACCINATION.

Coorg. Only 1,016 persons were vaccinated in Coorg during 1877-8, or 343 less than in 1876-7. The new vaccination establishment, although sanctioned, did not come into operation before the close of the year.

Madras. The circumstances of the famine in Madras gave a great stimulus to vaccination, both by the increased necessity for protection, and by the facilities afforded through the massing of people in towns and relief centres. Operations in 1877-8 aggregated 787,730; of which 776,705 were primary, against 478,727 in 1876-7. Only one civil dispensary made any return. The percentage of success in primary cases was 82·28. Only 68,110 children under one year of age were vaccinated. The prejudice against infantile vaccination appeared, however, to be subsiding, at all events in the town of Madras, since fully half the children born there were vaccinated, as compared with less than a third in former years.

Bombay. Contrary to the experience in Madras, the famine interfered with vaccination work during 1877-8 in the Bombay Presidency. There were 670,055 persons primarily vaccinated, against 732,184 in 1876-7. The percentage of success also fell from 95·35 to 94·11. The number of infants unable to walk who were successfully vaccinated was 317,982. An Act, making the system compulsory in the capital, came into operation in September 1877.

MEDICAL RELIEF.

Bengal. At the various medical institutions in Calcutta and the suburbs, 325,562 persons were treated in 1877, and 25,358 of them were indoor patients. The death-rate per 1,000 patients was 133·26, but by deducting moribund cases, it would be reduced to 118·24. With regard to other charitable medical institutions in Bengal, twelve new dispensaries were opened during 1877, and three were closed, leaving a total of 239. The registered attendance, 833,254, was not much in excess of that for 1876; but the returns of nine institutions had not been received. The diseases which caused the principal mortality were dysentery, cholera, diarrhœa, fevers, dropsy, debility, and spleen diseases. The mortality from fevers was higher than in 1876, while that from cholera was considerably less.

Assam. Dispensaries are said to be not popular in Assam, nor to be as useful there as in other provinces. Eighteen institutions were open during 1877, and the number of patients treated in them was 27,724.

N. W. Provinces and Oudh. At the 201 hospitals and dispensaries open at the close of 1877 in the combined North-Western Provinces and Oudh, 36,499 indoor and 1,032,401 out-door patients were treated during the year. A falling-off in the number of out-door patients arose from the healthiness of the season; while the increase of in-patients in the North-Western Provinces was, to a considerable degree due to operations of an important character, which rose in number from 2,934 to 4,255. Of the total number of in-patients 75 per cent. were cured or relieved, and 9 per cent. died. The systems of local support of dispensaries are different in the North-Western Provinces and in Oudh. In the former municipalities contribute liberally; in the latter they give little or nothing, but the local rates provide 23 per cent. of the total income.

Punjab. During 1877 the addition of five new dispensaries in the Punjab raised the number from 161 to 166. The cost to Government of these institutions was still further reduced during the year. Owing to the exceptional healthiness of the season, there was a decline in the number of out-door patients from 1,175,034 to 1,114,420, but the increasing popularity of the institutions was indicated by an increase of in-patients from 30,428 to 31,627.

Central Provinces. In the Central Provinces there were 77 dispensaries open on the last day of 1877. The in-door attendance again slightly decreased, but this was in most cases satisfactorily explained, and was more than counterbalanced by a rise in the number of out-patients from 369,065 to 401,309, or 8·7 per cent. This increase was the more satisfactory as 1876 was an unhealthy year, and 1877 a healthy one. Women resort comparatively little to the dispensaries; the number of children, however, largely increased during the year. It was a general complaint that hospital assistants were lazy and careless, and in consequence vaccination work was very much neglected. The Chief Commissioner pointed out that such results also reflect unfavorably on the superintendence of the Civil surgeons concerned. Another unsatisfactory feature was

was the low rate of private subscriptions; those of Europeans shewed a falling off during the year. The duty of endeavouring to interest the community in these institutions has been enjoined on Civil officers. The cost of dispensaries was less, notwithstanding the great attendance. MEDICAL RELIEF.

The number of dispensaries open in British Burma during the year 1877 was twenty. A large and commodious hospital was opened at Moulmein, and one was begun at Akyab. A new hospital was also erected at Bassein. As compared with the previous year the in-patients increased from 5,917 to 6,834, and the out-patients from 63,758 to 65,750. British Burma.

Dispensaries are fairly popular in the Ajmere and Mhairwarra Districts. At the seven institutions open during 1877, the number of patients treated was 26,426. Ajmere.

There were in Berar during 1877, as in the previous year, six civil hospitals and 24 dispensaries. An offer has been received from certain native gentlemen to establish a new dispensary at their own cost, provided that Government will pay for the native doctor, and supply European medicines. In the out-door attendance (105,668) there was an advance, which was the more satisfactory as the year was by no means an unhealthy one. In-patients numbered 1,855. The Commissioner of the Assigned Districts remarks that "scientific medicine, working through hospital assistants, wages an unequal war "against the hakims. The latter, urged by self-interest, address themselves to "the mind of the patient. It may be that they attribute his complaint to "unseen powers, and profess to cure it by similar means; but at all events they "supply him with a theory in which he can thoroughly believe." Berar.

Nineteen dispensaries were in operation in Mysore during 1877, the same number as in the previous year; but the patients treated rose from 137,663 to 162,272. Temporary hospitals and sheds were also erected for the reception of sick paupers, but the numbers of patients relieved, and the number of deaths that occurred in them cannot be stated with accuracy. At the leper asylum 101 patients were treated during 1877, and 43 remained at the end of the year. Mysore.

At the two dispensaries in Coorg 9,971 patients were treated during 1877, being an increase of 218 on the numbers of the previous year. Coorg.

The year 1877-8 closed in the Madras Presidency with an addition of ten to the number of hospitals and dispensaries, bringing the total to 165. The circumstances of the year led to an enormous increase in the resort to these institutions; the number of in-patients rose from 37,835 to 79,288, and of out-patients from 729,616 to 932,593. Government contributions increased by 895 *l.*, those from municipal and local funds 6,370 *l.*, European subscriptions 192 *l.*, and Native subscriptions 374 *l.* Madras.

The total number of civil hospitals and dispensaries open on 31 December 1877 in the Bombay Presidency was 176, and the numbers of in-door and out-door patients were 43,595 and 908,582 respectively. Malarious fevers held the foremost place among the causes of sickness; as compared with 1876, there was a remarkable increase under this head in the Konkan and the Deccan, with a decrease in Gujarat, while in Sind the amount of fever remained nearly stationary. In the famine-stricken districts of the Poona division, the cases of ulcers treated increased from 9,157 to 13,921. Syphilitic affections continued to increase. In the two native hospitals in the City of Bombay, the cases amounted to 7·3 per cent. of the total treated. The net income of all the institutions, excluding floating balances, was for the year 101,517 *l.*; of this Government contributed 81,387 *l.*, local and municipal funds 15,387 *l.*, European subscriptions were 174 *l.*, native subscriptions 1,209 *l.* (of which 1,064 *l.* was given by the late Sir Cowasji Jahanjier, to be invested for the benefit of the Bandora dispensary), 1,095 *l.* was interest on invested capital, and 2,265 *l.* was derived from miscellaneous sources. The Surgeon General testifies to the zeal and ability with which the civil medical officers and subordinates, with a few insignificant exceptions, carried out the unusually arduous duties of the year. Bombay.

As regards the lunatic asylums of Bengal, the year 1877 opened with 1,131 patients; the admissions numbered 247, and readmissions 38; the number discharged cured was 147; and 96 were made over to relatives and friends as improved. LUNATIC ASYLUMS. Bengal.

LUNATIC ASYLUMS.

improved. The asylums are reported to be well managed by the medical officers in charge, who do all in their power to obviate faults of construction in the buildings, and to keep pace with the modern ideas as to the treatment of insanity. Phthisis and diarrhœa were the principal causes of death. It was demonstrated by Dr. Payne at the Dullunda Asylum, that a great diminution of cases of dysentery and diarrhœa, and of intestinal worms, followed on the compulsory use of pure water. Surgeon Major Birch alludes to the total absence of a form of insanity very common and invariably fatal, examples of which are to be found in every asylum in Great Britain, and which is known as the "general paralysis of the insane." The narcotics which are most used in Bengal would seem to be much less likely to cause madness than strong drink in Europe. *Ganja*, no doubt, often gives rise to insanity, but not so frequently, it would seem, as drink in Britain, and the attacks of insanity produced by it as a rule soon pass off. Opium, both in China and India, claims very few victims among the insane when we consider the numbers who use it.

Assam.

At the Tezpur Lunatic Asylum, the only one in Assam, the buildings were still only of a temporary nature, and underwent little change during 1877; but attention was paid to improving the drainage of the site. Most of the inmates were natives of other provinces. At the close of the year 34 patients were in the asylum.

N. W. Provinces and Oudh.

More patients were treated during 1877 at the four lunatic asylums of the North-Western Provinces and Oudh than in any previous year; at its close there were 878 persons in confinement, of whom 200 were criminal lunatics. At the Benares Asylum the registered accommodation was considerably exceeded.

Punjab.

In the Punjab the lunatic asylums at Delhi and Lahore were well managed during 1877. An idea is given of the cost of maintenance in India by the fact that the Government found it necessary to comment on the extravagance of the expense of diet per head at the latter asylum, having been at the rate of $2\frac{1}{2}$ *d.* per day, whereas at the Lahore jail it was under $1\frac{1}{2}$ *d.*

Central Provinces.

Results during 1877 at the two asylums of the Central Provinces were very similar to those of the preceding year. A great proportion of the admissions was in both cases from the district in which the asylum was situated; this fact, together with the large number of "cures," appeared to indicate a tendency to bring to the asylums persons suffering from temporary causes (*ganja* or opium), which, as the Inspector General observes, should properly be treated in dispensaries or jails.

British Burma.

Since its first establishment the number of inmates in the Rangoon Lunatic Asylum has steadily increased. The daily average strength in 1871 was 81, and in 1877 it was 183. The increase is due to the growing number of incurable cases. The total number under treatment during the year was 220, of whom 197 were males and 23 females. The causes of insanity were in 82 cases physical, in 79 moral, and in the rest unknown. The management of the asylum was on the whole satisfactory; the superintendent reported very favorably on the subordinate staff of the institution.

Berar.

In April 1877 the lunatics of the province of Berar, who had previously been confined in a special department of the Amraoti central jail, were removed to the new asylum that had been built at Amraoti for their accommodation. Though the asylum was constructed to contain only 20 patients, yet this number was exceeded during the year. At the end of December the patients numbered 21, of whom four were criminal lunatics. Rope and twine making formed the chief occupation of the patients. Their health was fairly good.

Mysore.

During 1877 there was a daily average number of 140 lunatics in the Mysore Asylum. Deaths were very numerous, chiefly from dysentery and diarrhœa, diseases which followed in the wake of famine all over the province. Criminal lunatics numbered 11, all hopeless cases. There was no separate accommodation for them, but they were more carefully guarded than the others. Weaving, rope-making, tailoring, and the like occupations gave employment to five-sevenths of the inmates.

Madras.

There were 150 admissions to the Madras asylums, against 172 in 1876-7. The aggregate population of the asylums is, however, stated to be on the increase. While in the percentage of recoveries to admissions there was great improvement (64·66 against 32·55), the percentage of deaths to daily average strength rose from 19·90 to 22·86. By far the greater number of deaths was

due

due to atrophy, appearing to indicate a connexion in the progressive decline of mental and bodily powers. Next in order of fatality came diarrhœa The Surgeon General apprehends that with the increase of drinking habits in the Presidency, intemperance will gradually assume a more important position than at present among the physical causes of insanity. LUNATIC ASYLUMS.

The five asylums under Government control in Bombay and Sind began the year 1877 with 582 patients; the admissions during the year numbered 287; 240 patients were discharged, 99 of them as cured. It is said that the experience of each year shews more and more conclusively the value of suitable employment as an agent in the amelioration of the mental condition of the patients. Some important improvements were carried out at Colaba, which will not only lessen the notorious unhealthiness of the building by rendering the floors of the old wings drier and the ventilation of the rooms freer, but will also give accommodation for 15 additional patients. Lunatic labour was employed to rectify some imperfections in the main drains of this asylum. Conservancy appears to have been effectively carried out in all cases. Water-supply was good and sufficient, except at Colaba, where the deficiency has been a constant source of complaint. It is hoped that the new waterworks now in course of construction will increase the supply. Bombay.

Medical education in Bengal suffered a general decline during 1877-8. Pupils in the Medical College of Calcutta fell from 176 to 146, and in the four vernacular medical schools at Sealdah, Bankipore, Dacca, and Cuttack, from 862 to 686. Fewer students now enter the Medical College than in former years, owing to the substitution of the First Arts for the Entrance Certificate as the qualification for admission. The novelty of the vernacular medical schools has to a certain extent worn off; new pupils are admitted in smaller numbers than before, and many of the old pupils have ceased to attend. MEDICAL SCHOOLS. Bengal.

No medical students from the North-Western Provinces or Oudh presented themselves at any of the Calcutta University examinations during 1877-8. There were at the close of the year only 86 scholars on the rolls of the vernacular medical school at Agra. N. W. Provinces and Oudh.

Six candidates during 1877-8 passed the junior, and 11 the senior examination in medicine at the Punjab University College. At the Lahore Medical School the number of students in the upper or English department rose from 46 to 56, and in the lower or Hindustani department from 84 to 99. Students are received into both departments from the North-Western Provinces as well as the Punjab. Since the establishment of the school in 1870, altogether 65 of its students of the upper class had obtained the rank of assistant surgeons, while 256 students of the lower class had been admitted into Government service as hospital assistants with regiments or in civil dispensaries. The weekly lectures of a midwife class attached to the school were attended by 17 women practising midwifery in Lahore. Punjab.

A very unfavorable report was again received from the Central Provinces of the general character and abilities of the pupils in the Nagpore School of Medicine. The Principal attributes this to the pre-collegiate year of training at a civil hospital; and the Chief Commissioner has now, in deference to his opinion, altered the system. The standard of preliminary examination will also be raised, and will embrace a knowledge of English. The general conduct of the students who remained after dismissals was satisfactory, but their deficient education was a great drawback. Five Mahratta Brahmins were among the new admissions. The prejudice among this class generally against medical pursuits is very strong; one young man prosecuted his studies under violent opposition on the part of his relatives and friends. Central Provinces.

No regular medical instruction appears to be carried on in British Burma, Ajmere, Berar, Mysore, or Coorg, and no students from any of these provinces are stated to have presented themselves at any of the medical examinations of the universities. British Burma, Ajmere, Berar, Mysore, Coorg.

The progress and conduct of the students at the Madras Medical College during 1877-8 were reported to be generally creditable. The Principal thinks it is to be regretted that the medical degrees of the Madras University are not sought, and that students should sever their connexion with the college and proceed to Europe to complete their education. They do so, not from any impression that the character of the education imparted at Madras is inferior, but because the degrees have not the same value attached to them as those Madras.

MEDICAL SCHOOLS.

granted in Europe, not qualifying for registration in Great Britain, or for admission to the competitive examinations for medical appointments in the Army. The Government, however, approve of the continuance of the present system, and consider that it is only necessary that the people at large should learn by experience that the possessor of a degree possesses also a special and useful knowledge for the services of each graduate to be equally required and amply rewarded.

Bombay.

From the Grant Medical College at Bombay six students obtained commissions in the covenanted medical service, after passing the prescribed examinations in England, and were likely to proceed ultimately to the degree of doctor of medicine. The institution continued to grow in popularity, the numbers on the rolls increasing from 286 to 326, of whom 231 attended the English classes, and 91 the vernacular classes, while four women joined the class for midwives. Former students, now employed under Government, shewed during the famine the advantages of the sound and practical training received at the college.

SANITATION.

Bengal.

The discussion of the question of sickness caused in Bengal by obstructed drainage, partly through roads, railways, and embankments, but still more through natural silting up or destruction of old watercourses, led Government to issue instructions to local officers to improve drainage as far as possible. It was pointed out that existing laws give ample power to deal with obstructions, that very often the expenditure of a few hundred rupees might afford relief to thousands of sufferers, and that district road committees ought to be able to render assistance by diverting their funds to the purpose, or, if not able to do so, by causing their engineering staff to devise and lay out village drainage schemes. The Lieutenant Governor stated that he would be always willing to assist district officers and public bodies by grants-in-aid, as far as possible, to enable them to improve the condition of the people. The subject of providing good drinking water was taken up at the same time, and district magistrates were requested to try and induce such native gentlemen as wish to dig tanks or wells, always considered a meritorious action, to place them where the need for water is greatest. Government also promised to assist district officers and public bodies by grants-in-aid whenever a really useful scheme to improve drainage or provide pure drinking water is projected. A scheme for draining the extensive swamps in and around Rungpore was approved by Government. Drainage works for Darjeeling town were completed, and the water-supply scheme was finally settled. Considerable progress was made with the waterworks at Dacca. Sanitary and conservancy arrangements were actively attended to in that municipality. The insanitary condition of Sunker Bazaar, the worst and most filthy part of the town, was rectified. All the cesspools in it were closed and the privies cleaned, and a monthly fee of five annas was levied from each house to defray the expenses of attending to its conservancy. It is intended to similarly deal with other parts of the town; and it is proposed, after the water-supply arrangements are completed, to close all the private wells along the waterworks lines, as they are fouled with soakage from innumerable cesspools. At Patna, a swamp which was used as a latrine and receptacle for refuse and filth was drained by cutting through it an eight feet deep drain, and the land on both sides of the drain was sold to people for the construction of houses. The obstructions to the Bankipore Canal, which forms the communication between the river and low lands to the south of the town, were removed, and its bed levelled so as to prevent stagnation of water. In the town of Purneah bylaws were sanctioned and strictly enforced; two latrines were built and ground taken up for trenching nightsoil; the conservancy staff was strengthened, and carts were provided; the main roads were repaired; two large masonry wells for drinking water were taken under municipal control, declared public, repaired and improved; the drains were cleared and jungle cut. A survey is proposed in connexion with a scheme to improve the drainage. The Bazaar at Kishengunge, pronounced by Dr. Coates "the filthiest place he had ever seen," was improved. A broad metalled road, with side drains and several broad byroads was opened out, and the residents have built a few masonry houses. Jute-steeping in, and fouling the banks of, the river have been stopped; arrangements have been made to provide latrines and keep the place clean; strict measures have been adopted to prevent the water of the

Ramzam from being fouled by tanners, paper manufacturers, elephants, &c.; a notification has been issued to the effect that any one fouling a public or private well will be dealt with according to law; a stone drain and a masonry well, for which the tradespeople have subscribed 492 rupees, were about to be constructed; and the improvement of the drainage was under consideration. Several good wells have been provided for the large trading mart of Raneegunge, near the Koosi river; the old ones were repaired, some roads constructed, and others widened. Much was done during the year for the sanitation of Pooree town. It was divided into three circles, and a health office *jemadar* placed over each to look after sanitary matters and to report defects. Conservancy arrangements were placed on a more systematic footing. A large drainage channel, running from the principal road and passing through the sand to the sea, was constructed. This channel is to have feeders connected with it which will complete the system of surface drainage. Three tanks were cleared, and two of them reserved and protected for drinking purposes. Several wells were cleaned and repaired, and two new ones dug. Supervision was exercised over the temple, and watch was kept to prevent nuisances; but it is difficult effectually to control the temple authorities. The health officer of Calcutta was much hampered in the important sanitary work of filling up the polluted tanks in the *bustees* (or hamlets inhabited by persons of the very lowest castes) of that town. Unfortunately the health officer stands to the Corporation in the relation of a sanitary adviser only, and they object to entrusting him with any executive power. This is the cause of much friction, and is necessarily most obstructive to the progress of sanitary work. The Government of India have called for a full report on the work to be done, the difficulties in the way of progress, and the resources and intentions of the municipality. The health officer of the port inspected 701 vessels during the year. Careful inquiries were made in each case as to the health of the crew during the voyage; the accommodation provided for them was inspected; whenever sickness was reported to have occurred, the crew were mustered, and each man was minutely examined; if there was any reason to suspect that bad or insufficient diet had been provided, the provisions were inspected; and whenever the hospital reports shewed that there was sickness on board any vessel, she was at once visited, and advice tendered to the captain as to the sanitary precautions to be adopted. The supply of water to the shipping from the municipal hydrants was much appreciated; several of the captains pumped out all the water they had remaining in the tanks, and refilled them with Calcutta water. There are no quarantine regulations for the port, but pilgrim vessels arriving from the Red Sea and Persian Gulf were required to telegraph from Saugor the state of health of the passengers and crew. The pilgrims were all found in good health. At the beginning of the period under review there existed a great number of nuisances from the deposit of sewage on the banks and its discharge into the river; but they are reported to have been for the most part abated. The Government had not yet found it possible to carry out the connexion of the fort drains with the municipal sewer. SANITATION.

In Assam the only sanitary work of importance undertaken during 1877-8 was the drainage of the town of Gauhati. Swamps in the rear of this town had been for years a source of serious injury to the health of the community. In other places the means available were mainly devoted to keeping up the scavengering establishment and maintaining surface cleanliness. The water-supply of some of the larger towns was in a very unsatisfactory state, but the scarcity of funds was the great obstacle to the carrying out of any improvements. Assam.

The North-Western Provinces are conspicuous for energy in sanitary administration. While the Sanitary Commissioner (Mr. Plank) and other officers display great zeal and ability, the municipalities, out of a gross income of 200,000 *l.*, spend annually nearly 35,000 *l.* in conservancy, and over 75,000 *l.* on works of public utility; and this does not include charges for dispensaries and vaccination. In the opinion of the Chief Commissioner, Sir G. Couper, the towns generally act as most useful examples to the rural population. The most important work of the year was the continuation of the long drainage channels in the canal-irrigated districts of Bulandshuhr and Aligurh, the object of which is the removal of excesssive moisture from the lower-lying portions of land to the natural drainage channels of the country. The drainage works at N. W. Provinces.

SANITATION.

Meerut were in course of completion during the year. In many villages of Kumaon and Gurhwal that were visited during the year 1876–7 by a severe outbreak of *mahamari* (a highly contagious pestilence, stated to be similar in many respects to malignant typhus fever), rules have been enforced for the removal of cattle to a distance from human habitations, and for the maintenance of general surface cleanliness. Drainage was extended in all the municipal towns of Bareilly, and their conservancy was improved. Important works, costing 816 *l.*, were carried out at Saharunpur for the further improvement of the drainage of the city site. At Agra drainage and paving works were carried on. All the covered drains of the city were opened out and cleansed, and so fashioned as to remain open drains, which can be effectually inspected and kept perfectly clean; the plan of burying latrine impurities in trenches was introduced in place of the old plan of burying it in deep pits; and many uneven and unsightly places within the city site were levelled and planted with trees and shrubs. In Banda district it was determined to adopt systematic measures for the improvement of village sanitation. The large villages containing more than 1,000 inhabitants were first taken in hand, and the people there informed by proclamation that manure or refuse heaps must be located at a distance of at least 200 paces from the inhabited site, and only to the north or south of the site; that no nuisance should be permitted within a circle of 200 yards radius around the village site, or within 20 yards of any village road or path way; that unwholesome trades should not be carried on within the inhabited site; and that all wells of water used for drinking should be kept clean. The local *tahsildar* and police inspector were to report upon ten villages weekly in each police circle; and cases of persistent neglect of the above rules would be punished under the Indian Penal Code. A special report requested by the Secretary of State on the arrangements for the drainage and conservancy of Cawnpore was received in July 1878. The drainage scheme was carried out some years ago on principles deemed unscientific by sanitary authorities, large sewers being constructed for the removal of storm waters, and the disposal of solid sewage being left to hand labour and carting. The scheme was locally considered to be suited, on the one hand, to the position of the city, and on the other to the native habits of life. Cawnpore is built on the two sides of a high ridge, involving two distinct systems of drainage, both of which begin from or near the Ganges Canal, and terminate in the Ganges River. It now appears that the western main channel is, for about two-thirds of its course, not properly flushed at all, and abounds in noxious impurities; moreover, there are some populous portions of the city which are not connected with either system, and the side drains of which deposit much impurity. The Government of India hope that these defects will be remedied as soon as the municipal finances permit.

Punjab.

The work of sanitary improvement continued to make satisfactory progress in both the districts and the municipalities of the Punjab. In the latter the expenditure for sanitary purposes mounted to 68,448 *l.*, or 33·7 per cent. of the receipts. Projects of water-supply and drainage for Delhi have long been in hand, but seemed as far as ever from completion. The roads, however, were daily swept and watered, and measures were carried out for the prompt removal of filth. In the municipal towns of Gurgaon district all wells used for drinking purposes were thoroughly cleaned and repaired, and considerable sums were spent for conservancy and paving. In Hissar district the wells were kept clean, drainage was good, and cleanliness was strictly maintained in the large towns by the municipal sweepers. A large drain in the town of Hoshiarpur, which had been under construction for the last two years, was completed, and is pronounced to be "a valuable sanitary work." In all the towns of this district great attention appears to be paid by the authorities to conservancy and sanitary arrangements. Umritsur city is also favorably mentioned in this respect. The preliminary operations for a supply of pure water to Lahore were taken in hand. The drainage of Rawulpindee was good, and great attention was given to conservancy, but after the discussion of various schemes for a water-supply nothing appears likely to be done at present owing to special difficulties presented by the situation of the town. Extensive measures were adopted for the improvement of the towns in Shahpur district, wells and tanks were cleaned, holes were filled up, streets paved and drained, and sewage channels kept clean. The civil officers were reported to take a very practical interest in these matters.

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The improvements at Simla have been progressing; various alterations have been made in the bazaar, roads have been widened, the market was nearly completed in May 1878, and the reservoirs for the water-supply had been begun. A committee appointed in October 1877 to advise as to the details of the works found some difficulty on the question of the disposal of excreta. They recommended that in the dry season cremation should be the method employed, and that in the wet recourse should be had to agriculture; and they urged the prohibition of the promiscuous defilement of all lands in the station, and the supply and regulation of latrines. The whole cost of the improvements, according to a revised estimate, is put down at 160,000 *l.*, of which the water-works would probably absorb 110,000 *l.* The Government of India have promised a grant of 50,000 *l.*, and an examination of the municipal finances shewed that they could bear a loan of 70,000 *l.*; how the remaining 40,000 *l.* was to be raised was, in May of last year, under the consideration of the Imperial in communication with the Punjab Government. The Lieutenant Governor of the Punjab has determined, at the first favorable opportunity, to amalgamate the Departments of Sanitation and Vaccination, placing both under the direction of the Sanitary Commissioner. In intimating his intention to the Government of India in September 1878, he observed that by this measure the former department would be beneficially strengthened, while the latter would be most usefully employed at a time when ordinarily it has little to do. SANITATION.

Some sanitary progress is said to have been made in every district of the Central Provinces, especially in the matter of a pure water-supply. Rules regarding public health, published under authority, are supplied to every town and village, and the heads of these communities are charged with the duty of seeing that these rules shall be acted up to as far as practicable. The large lake which supplies part of Saugor city with water received much attention; accumulations of weeds and other matter were removed, and men were employed for the purpose of preventing it from being polluted. The surface drainage was extended, and defective drains were put in repair. Many wells in the district were deepened, cleaned, and repaired during the hot weather. Systematic conservancy arrangements came into operation at Damoh; and drainage was much improved in that and other towns of the district. In Jubbulpore three large tanks, which were fouled by sewage and other offensive matter, were in process of being filled up. The drainage of the station of Hoshungabad was found to be defective by a committee which assembled in July to inquire into the alleged prevalence of fever there; the recommendations made by this committee to remedy the defects brought to light have since been carried out. A beginning was made at Chindwara towards systematic conservancy similar to that at Nagpore; and the same system was brought into force during the year at Seoni, and was working satisfactorily. At Nagpore itself conservancy arrangements continued satisfactory; about 30 public latrines were maintained in the city and suburbs, and the dry earth system was thoroughly carried out in them. This city is in great need of efficient drainage; but as the municipality is burdened with its debt on account of the waterworks, it was determined for the present, before attempting expensive works in another direction, to devote any funds it can spare towards completing the water service. Several densely populated parts of the town are still without water, and the people petition for extension. In the Chanda district it is stated that the constant endeavours which have been made to get the people to refrain from washing and bathing in tanks from which water is drawn for drinking purposes are beginning to have some good effect; the people, it is also reported, are ceasing to defile the immediate vicinity of their villages. There was in 1876 a considerable outbreak of cholera at Ramtek fair in the Central Provinces. The tank in which the people bathe is considered sacred, and although the water was described as "stinking," yet the people drank it in preference to going a short way to wells for a purer supply. Large new wells were therefore constructed at convenient spots during the subsequent dry weather, efficient conservancy and other sanitary arrangements were carried out under police control; eight latrines were constructed, and great care was taken to keep clear the ground on the hill sides between the temple and the area occupied by the assemblage. The result was that, although more than 125,000 people gathered at the fair in 1877, no sickness occurred. The scheme for employing vaccination officers in general sanitary work in the Central Provinces was strongly discredited by the Central Provinces.

SANITATION.

Local Administration. It was represented that, while their services were found useful in such work as distributing cholera medicines, they were as inefficient a body of men as it would be possible to place on sanitary work, having little or no education, no influence with the people, and the same conditions of life and prejudices as the rest of the population. Should they attempt such work, their proper duties would be obstructed by the opposition that would be arrayed against them. To this the Government of India replied that in other provinces the scheme had been generally accepted, and was being gradually acted upon; that it was deemed very desirable that the vaccination staff in the Central Provinces should be utilised in the Health Department under judicious management; that their status and education should be gradually raised; in short, that the risk that the measure may be badly carried out did not seem sufficient cause for abandoning it.

British Burma.

Much attention appears to have been given to sanitary improvements in the municipal towns of British Burma. Water was supplied from the Royal lakes to the Poozoondoung quarter of Rangoon; and a comprehensive scheme for supplying the whole town by the formation of a new lake was under consideration. When this has been accomplished it is to be hoped that it may be followed by a drainage scheme, for at present the mode of disposing of the night-soil appears to be most objectionable. It is placed in barrels, and conveyed by bullocks to the river. Sanitary progress in this town is greatly retarded by the opposition which any measures involving the slightest expense encounter from the residents, many of whom are speculators from Madras, who have no interest in the welfare of their place of temporary sojourn. The action of the municipality of Bassein in regard to the drainage of low sites, the erection of public latrines, &c., is reported to have been very creditable; and some good work was also done at Akyab.

Ajmere.

Conservancy was fairly well managed during 1877-8 in the municipal towns, Ajmere and Beawur. The question of a water supply for the former town was still under discussion. A reservoir for the water-supply of Nasirabad was finished during the year. As the centre of an important system of railways, Ajmere town bids fair to become populous and wealthy; but better water, better conservancy, and better drainage are still necessities.

Berar.

Scarcely any allusion being made by Dr. Abbott to sanitary work in Berar, his attention has been called to the principle distinctly laid down by the Secretary of State that sanitary measures are to be regarded as forming the most important part of the duties of a Sanitary Commissioner. No works of importance were undertaken in the province during 1877-8. The Government of India have suggested to the Resident whether a larger amount could not be allotted to sanitary purposes from the surplus revenues of Berar.

Mysore.

Among miscellaneous public improvements carried on in Mysore during 1877-8, the chief work was connected with the water-supply of Bangalore and Mysore, and the drainage of the latter town. The two water schemes were from 1 September 1877 made mainly subservient to famine requirements, and gave employment to numbers of distressed persons. The Mysore drainage scheme was carried out to the extent originally proposed, but some additional improvements were projected.

Coorg.

In Coorg no sanitary works were taken in hand during 1877-8 by the municipal authorities, but a certain amount of attention was directed to conservancy.

Madras.

No sanitary work of any importance was carried on in the Madras Presidency during 1877, both the attention of Commissioners and the resources of the municipalities being claimed by the exigencies of the famine. In the capital an unfortunate resolution was passed that Mr. Clark's scheme of drainage was too costly to be carried out from municipal funds. Thus it appears that Madras must, for the present at least, continue in its filthy and unwholesome condition, while the two other great capitals of India have been energetically taken in hand. A good amount of work appears to have been done in the capital in the way of conservancy, and in the improvement or removal of the *parcherries* or quarters inhabited by persons of the very meanest castes. The usual effective sanitary and police arrangements were carried out at the annual festivals held in the Madras Presidency with most satisfactory results. At Mylar there were as many as 66,000 persons present, and among the precautions taken, 461 sweepers and 76 scavengers were employed

employed under strict supervision; although the weather was exceedingly oppressive, no sickness whatever appeared among the pilgrims. At the Humpy feast cholera carried off 12 victims; the disease prevailed in the neighbourhood, and the outbreak was attributed solely to the unusually hot weather. The Inspector of Vaccination in Madras has been authorised to take a part in the sanitary inspection of towns and villages, and has been constituted a Deputy Sanitary Commissioner. With a view to utilise in general sanitary work the services of Deputy Inspectors of Vaccination, who are at present for the most part unqualified by their education and training for such work, arrangements have been made to ensure that future candidates shall have some knowledge of elementary hygiene. SANITATION.

On the subject of sanitary works in the interior of the Bombay Presidency, no information has been supplied for 1877-8. A scheme has at length been sanctioned for the drainage of Bombay, which, including 100,000 *l.* for additional waterworks, is estimated to cost 600,000 *l.* It consists in the construction of a series of large sewers, which shall carry off the nightsoil and sewage of the whole city to the western shore of the island, at a point known by the name of Love Grove, where it will be thrown by a powerful pumping apparatus into the sea in a locality where no harm will arise. By this measure, among other benefits, the waters of the harbour and of the Back Bay will be free from pollution. The old superseded sewers will be used for carrying off rainwater only. The main drainage is intended to be followed up by a system of house connections as soon as the question of payment for such connections has been decided. With regard to the water supply of Bombay, it has been reported that the proposed reservoir on Bundarwada Hill will, by affording a constant supply, make it possible to do away with the dipping wells, while the scheme will include the filtration of the Vehar water; and that the question of elevating all water-pipes above the level of the sweepers' passages and drains was under consideration. Bombay.

XI.

EMIGRATION.

EMIGRATION. Bengal.

In consequence of the scarcity in Oudh and the North-Western Provinces, and the active operations of the emigration agents, the number of emigrants despatched from Calcutta to the Colonies rose from 7,734 in 1876-7 to 18,488 in 1877-8. Of these, 8,288 proceeded to British Guiana, 2,336 to the Mauritius, 1,092 to Natal, 4,087 to the British West Indies, 2,361 to the French West Indies, and 324 to Surinam. Nine emigration agencies were at work, employing 461 licensed recruiters. The larger proportion of the emigrants came from the North-Western Provinces, Oudh, and Behar. Colonial emigration has never been popular in Bengal proper, and there was a positive decrease during 1877-8 in the number of Bengal emigrants. Thirty-seven sailing ships and one steamer were employed in the conveyance of emigrants, the average number conveyed in each vessel being 486. Altogether 2,544 emigrants returned from the Colonies in 1877-8, bringing with them acknowledged savings in money amounting to 47,293 *l.*, or an average of 18 *l.* for each person. Many also possessed valuable jewelry. Evidence of the material prosperity of immigrants in Demerara is afforded by the fact that three Indian coolies run thoroughbred horses in the local races, frequently winning prizes. In the town of San Fernando 22 of the burgesses were originally Indian coolies; one died lately, leaving a fortune of 13,400 *l.* On the other hand, among the great mass of coolies, there is much drunkenness, with want of cleanliness, and with a tendency to imitate the lazy habits of Creole or Negro labourers.

Inland emigration also received a marked impetus during 18778. The number of persons registered as willing to emigrate to the tea districts amounted to 36,209, of whom 27,879 arrived at their destination. There were 26 licensed contractors at work, employing 780 recruiters. Several large Calcutta firms who are interested in tea estates have established depôts under the supervision of Europeans, and it is hoped that this may have the effect of stopping the malpractices prevailing in the recruitment of emigrants. Efforts were made to reduce the mortality among the coolies during the voyage from Goalundo to Assam, but no great success was attained. It is, however, not unlikely that the main stream of emigration will be diverted from the river route to the Northern Bengal State Railway. This will convey emigrants from Calcutta to Rungpore, whence they will march to Dhubri, and there embark far Assam. Complete arrangements have been made for providing shelter and medical treatment for emigrants on the line of road from Rungpore to Dhubri.

Assam.

There was a considerable increase during 1877 in the immigrant population of Assam. At the beginning of 1877 there were 135,807 immigrants in the provinces. During the year 86,712 others were added, and 65,300 removed from the books. Thus the total number remaining in the province at the end of the year was 157,219, shewing an increase in the immigrant population of 21,412. A very large number of immigrants as compared with previous years entered the province *viâ* the Dhubri and Rajmehal route. The labourers are said to be well treated and well cared for by their employers, and are in the main contented with their lot.

N. W. Provinces and Oudh.

Owing to the distress prevailing in the North-Western Provinces and Oudh, whence the larger proportion of the supply of colonial emigrants is usually drawn, the numbers (13,254) of persons from these provinces who emigrated during 1877-8 to the colonies was nearly treble that (4,279) of the previous year.

Punjab.

Only 69 of the persons who proceeded during 1877-8 from Calcutta to the colonies were recruited from the Punjab and its dependencies.

British Burma.

No emigration takes place from British Burma to other countries, but there is considerable immigration. From Upper Burma labourers arrive every year, especially at harvest time, in large numbers, and some settle permanently. Shans from the Burmese and Chinese Shan States also come down. These Shans are in many instances provided with free passages by steamer at Government expense, as they are found to be thrifty and industrious persons whom it

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is desirable to encourage. They often move down by whole villages at a time. Labourers come over in considerable numbers from Madras to the southern ports during the rice-shipping season, but few remain after its close. Labourers from Chittagong visit Akyab in like manner, but few of them settle annually in the district. There are many Chinese in the towns, some of whom are permanent residents, but probably most of the Chinese who come into the country return when they have amassed some little wealth. Nearly all of them come *viâ* Singapore and Penang from the southern seaboard provinces of China. Attempts have been made by Government to promote immigration from India, but without success, and the project has been finally abandoned. Between November 1877 and the close of the financial year, 758 immigrants, including women and children, were brought over from Cocanada under the provisions of the Burma Labour Act of 1876. EMIGRATION.

During the year 1877-8 there were 41,113 persons reported to have immigrated into Berar, of whom 18,846 are stated to have remained. However, whether they found employment in Berar or retraced their steps, all signs of the immigration soon disappeared. Berar.

Only 54 persons, most of them belonging to Bangalore, emigrated from Mysore during the year. Eight embarked from Karikal and nine from Pondicherry for Martinique; 37 embarked from Madras for the Mauritius and Natal. Twenty-three returned during the year from Natal to Madras, and one returned from the Mauritius. The number who returned from French colonies cannot be ascertained. Mysore.

Numbers of immigrants from Mysore and other parts flocked into Coorg during 1877-8 in search of work and food. Coorg.

Emigration from the Madras Presidency to the British colonies of the Mauritius and Natal was resumed during 1877-8. Emigration to Cayenne ceased to be recognised from 24 July 1877, as the climate of that place was found to be prejudicial to the health of the Indian coolies. From the port of Madras 1,500 emigrants embarked to the Mauritius, and 23,901 to Natal; while 1,072 embarked from French ports to Réunion, and 1,232 to the French West Indies. About 150,000 coolies proceeded to Ceylon during the year. Rules were sanctioned for working the British Burma Labour Act of 1876 at Cocanada, from which port alone emigration was for the present permitted. The Straits Settlements Emigration Act of 1877 was also brought into working operation. During the year there was no registered emigration from the North Arcot district. This is a noteworthy fact, as shewing the tenacity with which the natives cling to their villages even under the stress of a severe famine. Madras.

There was no general emigration from the Bombay Presidency during 1877-8. The colony of Talavias, a description of whose settlement was given in the last statement, continued to work upon some of the waste lands in the Pauch Mahals, and received the aid of Government in procuring grain and means of cultivation. The progress of this curious and interesting movement was being carefully watched. Temporary emigration took place to a large extent in parts of the Deccan, the movement gravitating towards the Ghats or beyond them to the towns on the coast. Bombay.

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XII.

EDUCATION.

EDUCATION.

EXPENDITURE on education in British India absorbed no less than 738,020 *l.* of the revenues of the Imperial Government. Fees and fines, income from endowments in land, contributions, sale proceeds of books, &c., and miscellaneous receipts, amounted to 108,994 *l.*, and reduced the charges on the "imperial" revenues to 629,026 *l.*, which was apportioned to the respective provinces as follows:—Bengal, 200,500 *l.*, among a population, according to the last census, of 60·5 millions; Bombay, 110,500 *l.* among 16·3 millions; Madras, 89,500 *l.* among 31·6 millions; North-Western Provinces, 73,500 *l.* among 30·7 millions; Punjab, 58,750 *l.* among 17·6 millions; Central Provinces, 32,500 *l.* among 8·2 millions; Oudh 22,000 *l.* among 11·2 millions; British Burma, 18,750 *l.* among 2·7 millions; Assam, 14,000 *l.* among 7·8 millions. From these figures it appears that the actual contributions from "imperial" revenues to each head of population in the several provinces were respectively,—British Burma 1·68 *d.*, Bombay 1·62 *d.*, Central Provinces 0·95 *d.*, Assam 0·81 *d.*, Punjab 0·80 *d.*, Bengal 0·79 *d.*, Madras 0·68 *d.*, North-Western Provinces 0·57 *d.*, Oudh 0·47 *d.* In Ajmere, Berar, Mysore, and Coorg, taken altogether, the contribution was at the rate of 0·27 *d.* The average for the whole of India was 0·79 *d.* Besides "imperial" contributions it is calculated that at least one million sterling was furnished from provincial and private sources.

STATE OF EDUCATION. Bengal.

The improved financial position of the Government of Bengal in 1877–8 enabled it to raise the educational grant from 246,724 *l.* to 251,094 *l.* This stimulated private liberality to such an extent that the departmental receipts advanced from 47,181 *l.* to 51,980 *l.*; consequently the net Government expenditure amounted to 200,006 *l.*, being an increase of about 1,000 *l.* over the net expenditure of the previous year. At the close of the year the number of schools had increased from 21,478 to 26,218, and the number of pupils from 589,351 to 641,400. Primary schools rose from 12,272 with 302,500 pupils to 16,042 with 360,322 pupils, this being mainly due to the fact that many schools hitherto unaided were brought under Government supervision. During the year the lower or intermediate English schools were abolished as a separate class on the ground that they encouraged a defective system of teaching both English and the vernacular. There were seven colleges teaching to the standard of the B.A. examination, and five second grade colleges teaching to the first art standard. The number of pupils in all colleges rose during the year from 1,792 to 2,003. Casualties among the superior officers of the graded service seriously affected the efficiency of all the colleges. In every branch of special instruction except that of law the number of students seriously declined. In the Medical College the number of pupils fell from 176 to 145, in the Engineering Department from 124 to 87, and in the School of Art from 119 to 89. The number at the Vernacular Survey School remained constant at 160. The scope for the Artisans' School of Dehree was enlarged and the standard raised, in the hope of enabling employers of skilled labour to secure in India trained engineers and foremen whom they had hitherto been obliged to import at great expense from England. Normal schools were reduced in number from 31 to 24, and subsequent reductions since the close of the year brought the number down to 17, which is considered sufficient for the requirements of the backward parts of the province.

Assam

Fair success attended the working of the Education Department in Assam during 1877–8. There was an increase of 42 schools and of 2,451 pupils as compared with the preceding year's figures. This increase both in the number of schools and pupils was mainly under the heading "Primary Instruction," but the other stages of instruction exhibited a progressive element. Normal schools are said to have done much useful work. Under the heading of "Technical Schools" are included the Artizans' School at Jorhat, and the survey class attached to the Sibságar Zila School. Both these schools are supported from the Williamson Endowment Fund. In the Artisans' School the arts of the carpenter, the wheelwright, and the blacksmith are taught, and it is working with tolerable success.

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STATE OF EDUCATION.

N. W. Provinces and Oudh.

No injury is reported to have been done to the cause of education in the North-Western Provinces and Oudh by the reductions of 1877. The abolition of the least useful girls' schools, the withdrawal of grants-in-aid from some of the worst aided schools, and the closing of a few Oriental departments (established experimentally), were measures not only expedient financially, but also beneficial to the true interests of education. The remaining schools have been made more efficient, and the quality of the teaching has been improved. In Oudh the number of schools remained at the close of the year 1877-8 nearly the same as in the previous year, and the attendance somewhat increased. In the North-Western Provinces there were 557 fewer schools than in 1876-7, and 1,053 fewer than in 1875-6, the decrease being chiefly confined to girls' schools and indigenous schools. It was found that the State spent less as a rule per pupil in Oudh than in the North-Western Provinces, but the greater costliness of the educational establishments of the latter province was justified by their greater efficiency. Primary education suffered some interference during the year from the effects of the scarcity that prevailed. Schools maintained by municipalities in the North-Western Provinces were doing good work in giving elementary instruction to the poorer classes of towns. There was a slight increase during the year in the number of scholars under superior instruction. Ample provision for the education of poor Europeans has been made at all the larger stations. It should no longer be possible for any European children to grow up in these towns uncared for in respect of education. If the measures now in full operation are properly supported and maintained, what threatened to become a great evil will be effectually averted.

Punjab.

In the Punjab the number of Government institutions (exclusive of the Punjab University College) declined from 1,601 in 1876-7 to 1,564 in 1877-8, and of aided institutions from 470 to 464. The average daily attendance of scholars during 1877-8 in Government institutions was 72,181, a decrease of 1,364 as compared with the previous year; notwithstanding this reduction the number of pupils rose from 87,725 to 88,692. In aided institutions the average daily attendance was 21,603, an increase of 1,704. Delhi College was closed on 1 April 1877, the object of its abolition being to strengthen the Government College at Lahore by the increase of the professional staff, which could only be done by the withdrawal of professors from Delhi. It was considered better to have at the capital of the province an institution in which the highest education would be afforded to a large number of students than to maintain two institutions both inefficient. A great majority of the Delhi students came without remonstrance to Lahore to complete their education. In the Lawrence Military Asylum at Sanawar there were 410 children. Eleven aided schools were being maintained specially for children of European descent, besides the European training school at Delhi. Forty-seven pupils were at the close of the year on the rolls of the Mayo school of industrial art at Lahore, and the progress of the school was on the whole satisfactory.

Central Provinces.

Education progressed very favorably during the year 1877-8 in the Central Provinces; there were at its close 902 Government schools, attended by 53,376 scholars; 341 aided schools, attended by 16,762 scholars; and 165 unaided schools attended by 4,128 scholars. Government schools have been stationary for some years, though the scholars have increased, while the average attendance has increased in a greater ratio. Private schools have decreased largely as regards numbers, less so as regards scholars, the decrease being mainly due to the collapse of a large number of schools in the Sambalpur district. Favorable results were obtained by the single High School in the Province. Middle class schools improved in the number of scholars and in the instruction imparted. Many of the private schools did well, and both the Protestant and Catholic Missionary Schools were doing useful work. Normal schools are stated to have been turning out good masters calculated to improve the schools to which they might be sent. More than 50,000 *l.* was expended on education, about one-half of which was spent on primary education.

British Burma.

As regards middle and higher class education in British Burma, there was but little progress to record during 1877-8, but the influence of the Educational Department continued to extend among the numerous primary schools of the province. More primary schools were inspected than in the former years, and the attainments of the pupils appeared to be somewhat higher. Expenditure shewed an increase over that of 1876-7, costing

STATE OF EDUCATION.

Government 33,134 *l.*, the additional money being the contribution from local funds. Very little was spent on primary education, but the cost of middle and higher class schools was heavy. Various branches of technical education have been from time to time attempted without success. During the year 1877-8 a surveying class was opened, but no good results were attained.

Ajmere.

A revised scheme for extending elementary instruction in the Ajmere and Mhairwarra districts was brought during 1877-8 into almost complete working order. Mission schools continued to render gratuitous help to secular education. About eleven of these institutions were closed during 1877-8, leaving 81 open at the end of the year. There was an increase in the aggregate number of scholars under instruction in the province from 4,902 to 5,221, and in the average daily attendance from 3,883 to 4,044. It is stated that the boon of education was still insufficiently appreciated by the mass of the population. Ajmere College offers an excellent education to the boys of Ajmere at an almost nominal cost. Its pupils are mainly children of Government servants, and of well-to-do citizens. The college is undoubtedly popular, but the total number of pupils on the rolls at the close of 1877-8 was only 190.

Berar.

The Education Department in Berar started too ambitiously, and what is now sought is to consolidate the ground covered in former years, and to diffuse primary instruction among the masses rather than to set up high schools and middle class schools, which cannot properly be so graded according to a standard of results. Akola high school did well in 1877-8, but that at Amraoti continued very inefficient. There were 33 middle class schools, most of which improved in efficiency. The total number of educational institutions in the province at the close of 1877-8 was 694, containing 27,177 scholars, the average daily attendance for the year being 17,304.

Mysore.

School attendance in Mysore was adversely affected during 1877-8 by the severe distress prevalent throughout the province. In the Government institutions the numbers fell from 29,373 to 25,781. All classes of schools, Government, aided, and unaided, numbered 1,580, with an attendance of 39,379 boys and 4,233 girls.

Coorg.

A slight decrease occurred in the number of pupils under instruction during 1877-8, in Coorg, bringing the total to 2,719. The decrease in the number was almost wholly confined to those in private unaided schools.

Madras.

Owing to the famine and the changes in the results grant rules, the total number of colleges and schools in the Madras Presidency fell from 10,121 in 1876-7 to 9,143 in 1877-8, and the number of pupils from 287,948 to 255,809. Of these pupils 1,151 were in the college department; 4,317 in the upper department of colleges and schools; 13,432 in the middle department; and 235,038 in the lower department; 395 were normal students; 1,195 were pupils in practising schools; and 281 in technical schools. Altogether 274,690 *l.* was expended on education during the year, and of this amount 130,300 *l.* was contributed by Government. School fees collected fell off in all classes of schools. Collegiate schools educating up to the first art standard, and higher class schools increased. The movement for establishing gymnasiums at the principal higher class schools made some progress, apparatus being purchased, and an instructor employed at Salem, Cuddapah, and Kurnool. Arrangements for a central gymnasium at Madras were nearly complete. Owing to the famine, middle class education remained stationary; lower class schools decreased in number, the decrease being mainly due to the famine, and also to the operation of new and more stringent rules for results grants.

Bombay.

The number of educational institutions recognised by Government in the Bombay Presidency was 4,417 during the year 1877-8, or 47 less than in 1876-7. At the 3,607 State institutions, 207,369 pupils were on the rolls at the end of the year, to which were to be added 171,150 at the 208 aided, and 23,621 at the 602 unaided establishments. Excluding miscellaneous expenditure, the cost of Government institutions was 230,452 *l.*, of aided ones 50,969 *l.*, and of inspected establishments 17,155 *l.* In the 43 high schools the number of pupils declined from 8,527 to 7,735, the decrease being due to the withdrawal of four aided institutions from their connexion with Government. Middle class schools fell in number from 152 to 145. Judging from the inspector's reports this description of schools had not nearly approached the standard expected. A temporary check to primary education was caused by the

the famine. A great portion of the falling-off in attendance was in the districts in which the decrease of cess receipts, owing to suspension of collection of land revenue, led to the closing of some of the less frequented schools. There were six training colleges or schools for male and three for female students. Except in Sind, where the progress was not satisfactory, the training institutions are stated to have been doing good work. With regard to special colleges, the number of students in the law school rose from 113 to 128. Good progress was made by the Grant Medical College; three of its students went to England and obtained commissions in the medical service. At Poona Engineering College the pupils increased from 164 to 172; the apprentice classes at this college are largely recruited from Eurasians and Portuguese. For the accommodation of Sir Jamsetji Jeejibhoy's School of Art at Bombay, a new and permanent building was begun in 1874, and completed at the beginning of 1878, the school being removed into it from its former quarters on 1 April 1878. The number of pupils on the rolls rose during the official year from 132 to 155. STATE OF EDUCATION.

To the various examinations of the University of Calcutta 4,124 students were sent up during the year 1877-8. Of these candidates, 1,674 passed, including 113 Christians, 1,432 Hindoos, 85 Mahomedans, and 44 of other religious denominations. With one exception, all these were natives of India. UNIVERSITIES. Bengal.

On the occasion of Her Majesty's assumption of the title of Empress of India, it was announced that the Punjab University College would be elevated to the rank of a university, but certain objections were afterwards advanced in England against the measure, and the Secretary of State hesitated to confer on the college the full powers of a university, pending the receipt of a further report on the matter. During 1877-8, therefore, the students were compelled in most instances to present themselves for both the examination of the Punjab University College and that of the Calcutta University. Punjab.

In Madras an important event occurred during 1877-8 in the settlement of the question of affiliation of subordinate institutions to the university. A number of these institutions were affiliated in the various faculties, and as a general rule students will be obliged in future to produce certificates of attendance from the heads of these institutions before they present themselves for examination under any degree. There was a trifling decline in candidates for the matriculation examination, and only 807 passed against 1,250 in the previous year; but the decrease in the number of passes was due to a return to a former and higher standard of examination. Among the successful matriculation candidates was included for the first time the name of a female student. The university was said to have become almost self-supporting. Owing to the reductions recently made in the amount of fees to examiners and other matters, the net cost was only 381 *l.* against 1,154 *l.* in the previous year. Madras.

Out of 1,437 candidates that presented themselves during 1877-8 at the various examinations of the University of Bombay, only 384 passed. Among those were 14 Europeans, the remainder including 17 native Christians, 258 Hindoos, six Mahomedans, 86 Parsees, and three of other denominations. Three girls appeared at the matriculation examination, and two of them were successful. The standard of the previous year was maintained for this test, but some changes were introduced into subsequent examinations. Bombay.

In Bengal Mahomedan pupils increased from 106,590 in 1876-7, to 111,645 in 1877-8. Several new scholarships were given from the Mohsin fund to enable Mahomedan students to continue their English studies in the Calcutta Madrasa or at other Government institutions. The total expenditure from this endowment on Mahomedan education was 5,653 *l.* In Assam rather more Mahomedans attended the schools than in the preceding year. Mahomedans in the districts of Sylhet and Cachar are somewhat apathetic in the matter of State education. With regard to schools not under inspection, it was ascertained that in the Sylhet district there were over 200 independent *maktabs* or private shools attended by more than 3,500 Mahomedan pupils. The education given in these *maktabs* is generally nominal, consisting of the teaching of portions of the Koran to a few of the Mahomedan boys of the village. The teacher is generally an itinerant *mulla*, who settles down for some months in a village, and MAHOMEDAN EDUCATION. Bengal. Assam.

MAHOMEDAN EDUCATION.

and when he thinks he has performed his mission, he betakes himself to some other village where he starts a new *maktab*. In the North-Western Provinces there were 47,377 Mahomedan scholars on the rolls at the end of the year, and 14,290 in Oudh. In the Punjab the number of Mahomedans under instruction has been stationary for some years; at the close of 1877-8 they numbered 43,088. In the Central Provinces there were 5,844 Mahomedans under instruction in 1876-7, and 5,700 in 1877-8. In British Burma the number of Mahomedan pupils at the end of the year was stated to have been 309. In Ajmere there were 241 Mahomedan pupils in the schools connected with Government. The numbers in the seven missionary schools have not been stated, but were probably greater than those in the Government and aided schools. In Berar there were 3,509 Mahomedans under instruction in 1877-8, as compared with 3,602 in 1876-7. In Mysore the number of Mahomedans fell from 3,797 to 3,491. In Coorg 88 pupils out of a total of 2,719 were Mahomedans. In the Madras Presidency there was a decrease in the number of Mahomedans under instruction from 20,653 in 1876-7 to 18,008 in 1877-8. Among these there were 1,020 girls. The proportion of the Mahomedan population of the Presidency to each pupil was as 103 to 1. In the Bombay Presidency the number of Mahomedans under tuition fell from 27,263 to 26,563, or 10·7 per cent. only of the aggregate number of pupils, whereas the Mahomedans constitute over 15 per cent. of the total population of the Presidency. A satisfactory increase occurred in the numbers of Mahomedan students at the colleges and higher schools.

N. W. Provinces. Oudh. Punjab.

Central Provinces.

British Burma.

Ajmere.

Berar.

Mysore.

Coorg.

Madras.

Bombay.

FEMALE EDUCATION.

Native female education in Bengal progressed during the year 1877-8. The number of girls' schools increased from 464 with 10,492 pupils to 519 with 11,964 pupils; but the number of girls in boys' schools decreased from 9,794 to 9,623. Altogether there were 21,587 girls under instruction, against 20,286 in 1876-7. It was found that the Zenana teachers employed by the missionary agencies were in some cases insufficiently qualified for their work, and that the great majority of the pupils had none of that preliminary instruction in school, to complete which is the object of the Government grants-in-aid of the Zenana missions. The time given by the teachers to each house averages, moreover, only two hours a week, including the time devoted to Bible stories and needlework. In the Dacca division the plan, started under native management, of encouraging Zenana teaching by rewards after examination, proved a failure, there being strong grounds for believing that the answers were frequently written by the husbands of the girls under examination. Altogether 1,291 female pupils attended the schools in Assam during 1877-8, or 191 more than in the previous year. Besides those actually at school many girls and adult females are said to devote their leisure hours at home to reading and writing. In the North-Western Provinces there were, besides one normal school for mistresses, 250 girls' schools at the end of 1877-8, containing 6,909 pupils, the average daily attendance being 5,626. The figures for the North-Western Provinces shew a very great decrease in the number of schools owing to the abolition of many that were admittedly worthless, and had entirely failed to realise the hopes upon which they were established. In Oudh there were three female normal schools with 20 scholars on the rolls, and 89 girls' schools, with 2,571 pupils. In the Punjab there were 122 Government female schools, containing 3,147 pupils, and 229 aided schools for natives, containing 7,022 pupils. The female normal schools contained 220 pupils, with an average attendance of 195. Among these is included the European training school for the Delhi Zenana mission, and another for the native schools in the Lahore circle. In the Central Provinces primary girls' schools maintained their position during 1877-8, but the Jubbalpore female normal school, though said to be doing good work, had not yet been able to meet the need for really competent schoolmistresses. The average daily attendance at Government schools increased, but there was a falling-off in the attendance at private aided schools, due to the closing of nearly all the primary private schools of Sambalpur at the end of the previous year. There are no indigenous girls' schools in British Burma, nor are female students allowed in the monasteries. Most of the female pupils in the province are at the lay mixed schools. The only Government girls' school, that at Rangoon, is classed as primary.

Bengal.

Assam.

N. W. Provinces.

Oudh.

Punjab.

Central Provinces.

British Burma.

There

There were 11 aided girls' schools, two of which were middle class schools, and the rest primary; and there were two higher class mixed schools receiving aid from Government. All of these last are missionary institutions. The total attendance of girls in all the schools of the province was 3,938. Of 2,571 who were at the native mixed schools, 442, or 17 per cent., won prizes at the examinations. Five girls' schools were established in the Ajmere and Mhairwarra districts during 1877-8, and were attended by 59 girls. Six stipendiary students were on the rolls of the female normal school, and were making satisfactory progress. The establishment of two more girls' schools was contemplated, it being probable that these schools would meet with success in certain villages. In Berar, girls' schools shewed a decrease of three, and the 13 that were open at the close of the year 1877-8 were in anything but a flourishing condition. The attempt to call girls' schools into existence in Berar must be said to have failed. Until the people are more ready for its reception, it is useless for European effort to foist on to them a growth so purely exotic as female education. There were 4,233 girls attending Government and aided schools in Mysore during 1877-8. A new Government girls' school was opened at Nyamti. Aided girls' schools were said to be doing good work, the Kanarese missionary schools being specially worthy of encouragement. In Coorg 194 girls were under instruction. Little interest continued to be shewn by the Coorg headmen in the matter of female education. In the Madras Presidency the number of girls' schools rose during 1877-8, and the total number of pupils under instruction, including those who attended normal and mixed schools, similarly increased. No new Government or municipal girls' schools were opened; though female education is not, as it once was, almost wholly in the hands of missionary and religious organisations, the number of pupils attending schools of this class shewed a marked advance during the year, while that of pupils attending Government and other schools exhibited a small decline. During three years the number of girls attending schools under inspection rose from 20,000 to 30,000, the latter number not including some hundreds of girls in the schools of Madras supported by the Maharaja of Vizianagram, which furnish no returns. Altogether 30,212 girls were known to be under instruction in the Presidency, of whom 17,335 were Hindoos, 890 native Christians, 1,872 East Indians, 1,017 Mahomedans, 751 Pariahs, 236 Europeans, and 11 Parsees. All classes except Europeans, shewed an increase during the year. The teachers' examination certificate, which has come to be accepted as a sort of test of the efficiency of the more advanced girls' schools, was passed by nearly twice as many candidates as in 1876-7. In the Bombay Presidency there were 243 girls' schools in 1877-8, or seven more than in 1876-7. The attendance was 13,091, an increase of 883 pupils. Besides these there were some girls at mixed schools, and 51 students at the three normal schools for mistresses. The Presidency town, as might be expected, shewed the greatest progress in female education, particularly among the Gujarati-speaking population. Mistresses trained under European supervision are reported to be very successful in attracting and retaining their pupils.

FEMALE EDUCATION.

Ajmere.

Berar.

Mysore.

Coorg.

Madras.

Bombay.

Contributions to the Economic Museum at Calcutta were received during 1877-8 from 43 out of the 56 local committees appointed to collect specimens in district sub-divisions. At the end of the year the museum contained 12,460 specimens, illustrating most of the economic products of Bengal. Attention was given to the important work of having the various classes of products in the museum examined and reported upon by commercial experts. A collection of indigenous dye-stuffs, accompanied by samples of dyed fabrics, was forwarded to the Secretary of State.

SCIENCE AND ART.

Bengal.

Further progress was made during 1877-8 in arranging and classifying the collections at the Lahore Central Museum, and the management of the institution was altogether satisfactory. The number of visitors, 161,216, was largely in excess of that in any previous year. The work of moulding the Yusafzai sculptures by the moulder and pupils of the Lahore School of Art was carried on successfully. Expenditure on the museum amounted to 210 *l.*

Punjab.

Nagpore Museum continued popular, and was frequented by crowds of visitors daily throughout 1877-8. Out of 257,722 visitors, 114,961 were native women. Nearly 300 new specimens were added to the collection; and a grant of 30 *l.* was made by the municipality.

Central Provinces.

SCIENCE AND ART.

Mysore.

During 1877-8 there were 219,830 visitors to the Bangalore Museum, or 98,857 more than in the previous year. Of these 27,507 males and 628 females could sign their names in the book. Four hundred new specimens were added to the collection. The annual expenditure was 228 *l.*

Madras.

Owing to the prevailing distress and sickness, fewer persons visited the Government Central Museum at Madras during 1877-8 than in the two preceding years. Out of a total of 180,958 visitors, 107,809 were men and boys, and 73,149 women and girls. The persons who signed their names numbered 47,381, of whom 20,345 signed in English. The unusual number of 14,430 specimens were added to the collections during the year. Additional accommodation was particularly needed for the exhibition of raw products, botanical specimens, insects, &c. There were 2,296 visitors to the public library of the museum, and 1,278 works were added to it during the year. Seven popular scientific lectures were delivered in the museum theatre. The collection and preparation of specimens of raw products for the Paris International Exhibition were begun in October 1877, and over 800 articles were shipped in February 1878. In addition to the series sent to Paris, two other sets were sent to the India Office and the Oriental Museum at Vienna. In round numbers the museum collected and dispatched over 30,000 specimens of the raw products of the Madras Presidency.

Bombay.

Several collections of specimens of different sorts were dispatched from the Victoria and Albert Museum at Bombay to the Paris Exhibition and to New Zealand, and a number of specimens were made over to the Director of the Oriental Museum of Austria. The average daily attendance at the museum was 803. At the close of the year the Sassoon Mechanics' Institute numbered 347 members, made up of 256 Europeans, 75 natives, and 16 Jews. In the library there were altogether 8,078 works. Two popular lectures were delivered during the year. With a view to increase the usefulness of the institute, arrangements were made for keeping open the reading-room from 7 to 9 p.m. A separate reading-room for ladies was also experimentally opened, but a trial of three months shewed that it was not appreciated.

LITERATURE AND THE PRESS.

Of 4,890 publications other than newspapers registered during 1877, under Act XXV of 1867, in the several provinces of British India, 544 were written in English and European languages, 3,064 in the vernaculars, 719 in Indian classical languages, and 563 in more than one language. Of the total number, 2,451 were original works, and 273 were translations; the remainder were republications. Educational works numbered 1,138, and non-educational 3,752. A large proportion of the works were religious and devotional, their number being 1,242. Poetry came second with 717. Fiction embraced 199, and the drama 119. Under language, 636 works were classed, relating to grammars, dictionaries, vocabularies, and the like. Law was the subject of 241, medicine of 142, mathematical and mechanical science of 148, natural and other sciences of 108, while 86 were devoted to history, 56 to philosophy (including mental and moral science), 36 to biography, 9 to travels and voyages, and only 2 to politics. The remaining 1,149 works were classed as miscellaneous. As regards the publications registered in the different provinces, the numbers in 1876 and 1877 were respectively as follows:—Bengal, 1,512 and 1,576; Assam, 38 and 17; North-Western Provinces and Oudh, 630 and 898; the Punjab 892 and 815; Central Provinces, 1 and 1; British Burma, 69 and 83; Ajmere, none in either year; Berar, 1 and none; Mysore and Coorg, 68 and 32; Madras, 823 and 636; Bombay, 831 and 832. Act X of 1878, for the better control of publications in the Oriental languages, received the consent of the Governor General on 14 March 1878. After the close of the official year, a translation of the Act was forwarded to the publishers of vernacular papers, and their attention was called to its provisions. There were 683 periodicals on the registration list at the end of 1877-8 as eligible for the privileged rate of postage, and no less than 142 of these came into existence during the year, taking the place of 103 periodicals, the publication of which had been discontinued. Of the total 683 publications, 233 were in European languages, 369 in vernacular languages, and 81 in mixed languages. There are four reporters on the vernacular press in Bengal, Upper India, Madras, and Bombay, respectively.

Bengal.

Out of the 1,576 publications of all kinds received during 1877 in the Bengal Library,

Library, 1,512 were published in Calcutta. The rest came principally from the Dacca, Presidency, and Burdwan divisions. English works numbered 272. Copyrights of 1,399 books were registered during 1877-8, or 64 less than in 1876-7. The number of native newspapers supplied to the Bengal Library during 1877-8, exclusive of two that ceased to exist, and one, the form of which was changed during that period, was 40, against 35 received in 1876-7. Of the 40 papers supplied to the library, 14 were published in Calcutta, 11 in the Presidency division, 5 in the Dacca division, 5 in the Burdwan division, 3 in the Rajshahye and Cooch Behar division, and 2 in the Patna division. No papers were published in Chittagong, Orissa, and Chota Nagpore. Eight new papers were started during the year. Of these the *Hindoo Lalona*, a fortnightly journal, was edited by a respectable Hindoo lady. This paper deals mostly with social topics, especially such as relate to native females. LITERATURE AND THE PRESS.

All the 17 books registered in Assam during 1877 were of little interest. Thirteen were written in Bengali and four in Assamese. Seven newspapers were published in the province during 1877-8. Assam.

The number of papers on the list of the reporter on the vernacular press of Upper India, averages about 100, but the number fluctuates considerably on account of the struggling and ephemeral character of many of the publications. During 1877-8 the reporter had 107 papers on his list, against 97 papers during the previous year. Fifteen papers, however, expired before the close of the year, leaving only 92 papers on the list. Of the 107 papers, 46 belonged to the North-Western Provinces, 18 to Oudh, 30 to the Punjab, 3 to Berar, and 10 to native states. Of the 10 published in foreign territory, Rampur contributed 2, native states in the Punjab 3, Rajpootana 2, and Central India 3. During the Russo-Turkish war, single sheets of paper, giving the latest telegraphic news, were also published at many places to meet the local demands for intelligence. Lucknow, Delhi, Lahore, and Meerut are the centres of newspaper publication in Upper India. Upper India.

Much greater literary activity was displayed during 1877 in the North-Western Provinces and Oudh than during the previous year. Altogether 898 works were registered, but few of them were of any importance. Twenty-one works were in English. Cawnpore and Lucknow were the principal centres of publication. Of the 64 native papers published in the North-Western Provinces and Oudh, 3 appeared daily, 1 twice a week, 35 weekly, 3 three times a month, 11 twice a month, and 11 monthly. The *Oudh Akhbar* had the largest circulation, namely, 820 copies. No other native paper had a greater circulation than 525. N. W. Provinces and Oudh.

Among the 815 books registered in the Punjab during 1877 several are said to be works of some interest or value. Twenty-seven vernacular papers were in existence at the end of 1877-8, and 14 of them were issued weekly. Punjab.

Literature has almost no existence in the Central Provinces. Only one work, and that in English, was registered during 1877. There seem to be no vernacular newspapers in the province. The Indian Railway Service Press at Jubbulpore, under the proprietorship of the Amalgamated Society of Railway Servants in India, publishes the *Indian Railway Service Gazette* once a week, and the *Masonic Record of Western India* monthly. Central Provinces.

With one or two exceptions, the 41 original works registered during 1877 in British Burma consisted of reports, tracts, and books on religious subjects by the American Baptist missionaries. The republications comprised religious, dramatical, and miscellaneous works in the Burmese and Karen languages. Burmese current literature is said to be represented by a few historical compilations in Arakan, and several struggling periodicals. Modern composition is said to be characterised by want of simplicity and pith, and is long-spun, pedantic, turgid, and illogical. The work of collecting manuscripts was deferred till the arrival of the Pali professor. Twelve newspapers were published in the province, of which two were issued daily, three twice, and seven once a week. There were also various advertising sheets, and four monthly magazines were published by the Baptist Mission and other religious bodies, in English, Burmese, and Karen. British Burma.

Under the head of literature and the press the record in Berar is always of the slightest. Two works during 1877 8 were presented to the literature committee, and their author was adjudged rewards of 5 *l.* and 10 *l.* The monthly Berar.

LITERATURE AND THE PRESS.

monthly Marathi publication, entitled the *Berar School Paper*, published by the educational department, reached the completion of its second volume. Four vernacular newspapers continued to be published.

Mysore.

Only 32 works were published and registered in Mysore during 1877, against 68 in 1876.

Madras.

In the Madras Presidency the year was not one of much activity in regard to publications, the total number registered falling from 823 in 1876 to 636 in 1877. The printing presses suffered from the effects of the general distress in much the same way as the educational institutions of the Presidency. The decrease in the total number of works registered in 1877 was, however, entirely under the head of reprints. Satisfactory advance was made in the number of "original works" and "translations," and these were chiefly in the vernacular languages. Distributed according to the language of publication, books in the European languages were about 14 per cent. of the total number, works in the vernacular languages were 69½ per cent., works in Oriental classics were 11 per cent., and the remaining 5½ per cent. were bilingual or polyglot publications. The number of publications in Sanscrit and the two classical languages of the Mahomedan population has slightly increased. Some of these are interspersed with vernacular explanations. Copyrights of 71 books were registered.

Bombay.

In the Bombay Presidency 433 original works were published and registered during 1877, including 349 in Oriental languages, 83 in English, and 1 in Portuguese. Most of the remainder were republications, with a few translations. Works connected with religion and languages were most numerous. There was a decrease of three in the number of printing presses, but an increase of five in that of libraries registered. There were 69 vernacular papers published in the Presidency, or four more than in the previous year. Two leading characteristics of the native press seemed to be the cheapness and the recent establishment of most of the publications. One paper was published at threepence a year, and there were 17 papers the subscription to which ranged from thirteen pence to four shillings. Thirty-eight of the sixty-nine papers had been in existence less than ten years, and of these twenty-five were under six years old. The greater part of the press supports no regular policy. There are exceptions, however, among the Bombay and Poona papers. Those most patronised by the Parsees take a great interest in commercial and social questions, both Indian and European. Two leading Marathi papers are ably conducted, and fairly represent the views on general subjects of a large class of native society.

XIII.

NATIVE STATES.

States under the Government of India.

HYDERABAD.

THERE is no information available regarding the important State of Hyderabad.

BARODA.

Baroda continued during 1877-8 under the administration of Sir T. Madava Rao, K.C.S.I., Mr. P. S. Melvill, C.S.I., being the Governor General's Agent; and the administration report for the State deals with the twelve months ending 31 July 1878. The notable occurrences to the Gaekwar house during the year were the presentation to Her Highness the Maharani Jumnabai of the insignia of the Crown of India, the delivery with due ceremony of the Viceroy's *sanad* and *kharita* to the Maharaja for the title which had been given at the Delhi Imperial Assemblage, and the visit to Baroda of Sir Richard Temple, the Governor of Bombay. Improved relations existed between Baroda and the British officers of the adjoining districts and states. In the pursuit and extradition of offenders there was an increasing degree of efficiency, both in the neighbouring states and districts, and in Baroda. Ninety-four British subjects were surrendered and brought to trial in the courts of Baroda State during the year. A Boundary Commissioner was appointed, and shortly after the close of the year assumed charge of his duties, which are to settle disputed boundaries between Baroda and the neighbouring districts and native states. There were 107 of such cases for settlement. Out of 2,339 cases before the Settlement Officer for Giras and Wanta rights, 197 were settled during the last three months of the year, and it was expected that the duties of this officer would not be completed for at least two years. There were 125 Judicial Courts at work, and their yearly cost for the purpose of civil and criminal justice was 37,300 *l.* From stamps, fees, and fines the income was 28,100 *l.*, against 33,240 *l.* in the previous year. Fewer civil suits were filed than in 1876-7, the numbers declining from 12,539 to 8,159. Including 301 cases pending from the previous year, there were 10,821 criminal cases for disposal in 1877-8. Of these, 10,586 were decided, their average duration being 18 days. It is said that the general character of the sentences inflicted by the courts of the State were mild; the maximum number of stripes allowed is 30, as in British territory; fines are pitched very low, more than half not exceeding five rupees. Very rarely have complaints been made to the Governor General's Agent of the action of the judicial machinery. Most of the men employed in superior offices have been trained in the British service. Altogether 13,552 prisoners passed through or out of jail during 1877-8, as against 8,515 during 1876-7. The existing jail at Baroda was over-crowded during the year. Mortality in Baroda jail was high, but in other jails it was normal. The State police consisted of 545 mounted, 3,669 foot constables, with 973 officers, and cost for the year 74,989 *l.* Liberal salaries were paid to the officers and men. Municipal improvements were gradually being effected in Baroda city, the state of which is enormously better than it was three years previously. Attention was being paid to the sanitation of the leading towns of the State. Mr. Crosthwait completed the preparation of his scheme for the water-supply and the drainage of Baroda city. The Gaekwar's 2-feet 6-inch gauge railway between Meagam and Dabhoi was successfully worked. Extensions of this line, aggregating 35½ miles in length, were in hand, at an estimated cost of 61,800 *l.* Baroda High School continued to flourish, and contained 327 pupils. A gymnasium was opened in connexion with this institution, and was fairly used by the boys. There were 106 vernacular schools in the State, with 11,481 pupils of both sexes, being an increase of about 300 pupils on the previous year. Six of these schools were for girls, of whom there were 445, shewing an increase of 233. At the Vernacular College of Science, which aims at teaching medicine, law, and engineering, by means of the vernacular language, 62 pupils attended. Altogether 10,199 *l.* was expended by the State for education, and the fees received amounted to

BARODA.

1,025 *l.* Two more dispensaries were opened during the year. 66,755 persons were vaccinated, the number of males and females being nearly equal; the total increase of vaccinations for the year was 10,824. Owing to the badness of the season, remissions of land revenue were granted to the extent of 23,156 *l.*, and there were outstanding balances amounting to 108,757 *l.*, on account of the annual demand. A considerable portion of these balances would probably have to be eventually remitted. Waste lands, assessed at an annual value of 15,600 *l.*, were brought under cultivation. The total income of the State for the year was 1,201,221 *l.*, while the expenditure was 1,221,410 *l.*; there was thus a deficit of about 20,000 *l.*

RAJPUTANA AGENCY.

Rajputana States were much afflicted during 1877 by a deficiency in the rainfall, the crops being almost entirely burnt up by the extraordinary heat of the weather. Prices rose considerably; and from the pastoral districts the people were compelled to emigrate to save a portion of their starving cattle. Petty relief measures were adopted, such as the repairing of bunds, roads, wells, &c., to which the strong and able-bodied flocked, while the weak and needy were fed in their houses and relief camps. The scarcity continued up to the monsoon season of 1878. Large numbers of cattle perished for want of forage; but a sufficiency of food-grains for the people was obtained, and the country enjoyed comparative immunity from the disasters which usually attend a famine. The expedition which was begun in 1878 against certain refractory Bheel villages in Bánswára was brought to a successful issue, almost without bloodshed, the chief offender being taken prisoner, and compelled to enter into agreements for the future good conduct of himself and his principal associates. The question of extradition between Rajputana and the Punjab States was not on a satisfactory footing; complaints and counter-complaints of laxity on the part of the officials of Jeypore and Patiala were not infrequent. Special measures having been considered desirable to control the predatory tribe of Mogheeas, an officer was appointed to ascertain on the spot the best means of effective action against this tribe. Some little time was likely to elapse before any workable plan could be arranged. Sixty dacoities were reported during the year. Boundary settlements made satisfactory progress. The prisoners in the 13 existing jails shewed a daily average of 3,142; their death-rate was 49 per 1,000. In the various states 84,060 persons were successfully vaccinated. Emigrants returning from Malwa were affected with cholera on their way, and 36 deaths occurred. Smallpox was more prevalent than usual; in the city of Jeypore, where deaths are registered, 1,367 deaths were ascribed to this disease. Altogether 215,165 patients were treated during 1877 in the dispensaries of the various native states, as compared with 223,363 in 1876. After many delays, the construction of the main building of the Mayo College was begun at Ajmere, and favorable progress was made during the year. Since the submission of the previous report on this institution six boys left the college on attaining their majority, while fourteen new pupils joined; the total number of students rising from 31 to 39. Education in Rajputana generally made fair progress. In Jeypore the attendance at the Maharaja's College shewed an increase of 144 in the number over that of the preceding year. Jodhpore and Ulwur High Schools were fairly attended, as also was the Thakoor's School at Ulwur. Several new schools were opened in Oodeypore. Female education progressed in Jeypore and Ulwur. In the latter state there were 15 girls' schools, and the number of pupils rose during 1877–8 from 301 to 387.

CENTRAL INDIA AGENCY.

Indore.

The Third Annual Administration Report of the Indore State for the *fasli* year ending 5 June 1878, drawn up by the Minister of the Maharaja, contains a notice of the measures taken at Indore to relieve the distress caused by the scarcity and famine over a great part of Central India. Holkar found that the combination among the dealers and the difficulty of procuring grain from the neighbouring countries, prevented his carrying out the principles of free trade; the Durbar accordingly purchased a good deal of grain, which was sold to *bona fide* customers at a fixed rate below the market price. Many poor wanderers were fed, clothed, and sent back to their homes. Export and import duties on grain were suspended, and donations were sent to several famine committees in Indore. Famine relief measures cost the State about 9,300 *l.* The system

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of trial by a jury of four was said to work well, and to harmonise with the feelings of the people. A court of small causes was appointed, but it was closed after working a short time. A code of criminal procedure was drafted, and has since been brought into use. Jail management was satisfactory. Many sanitary improvements were effected, resulting in widened streets, good drains, lighting, and general attention to cleanliness. Seventy-five out of the ninety-one schools in the state were supported by Government, and the total number of pupils in them was 3,836. Forest conservancy was attended with good results.

Indore.

In Gwalior the average rainfall is 29 26 inches, but during 1877-8 only 14·83 inches of rain fell. July, August, and September of 1877 were rainless, resulting in an absolute failure of the grain and grass crops in the northern districts, and consequently in much distress. Towards the south matters mended, and in the Malwa districts a fair harvest was gathered. A general exodus of the people in the Northern parts began early in August; they were joined by many who had left their homes in Bhurtpore, Dholpur, and Agra, and the roads were soon thronged with wretched emigrants and starving cattle straggling southward to Malwa; in a month the northern districts were all but deserted; no persuasion could stay the sufferers; many died of disease and hunger while spreading over Bhopal and Malwa. In October came a little rain, bringing partial relief. From August the Maharaja began measures of relief; public works were opened, and a large sum was spent in charity and various useful schemes. Laying the earthwork of the Sindia State Railway, between Dholpur and Gwalior, and constructing the road between Bhind and Etawah, saved thousands from exile and starvation. To meet the loss of revenue, the Maharaja was obliged to borrow 500,000 *l.* from the Government of India. Surrender of criminals under the Extradition Act of 1872, is reported to have worked without delay or obstruction. Negotiations, since completed, for the conclusion of a treaty with Gwalior for the protection of British interests in connexion with salt revenue on the abolition of the preventive line, were carried on throughout the year. In December 1877, the Maharaja received his commission as a general officer in the British Army, and in January 1878 he was invested at Calcutta with the Order of the Grand Cross of the Bath.

Gwalior.

Bhopal received but half its annual rainfall during 1877-8, and scarcity in consequence prevailed. The opium yield was only one-fifth of the average amount; gram crops almost entirely failed, and wheat partially; fortunately the autumn crop was fair. General health was not good, and much sickness lurked among the famine immigrants from Gwalior. Crime is said not to have increased to any great extent. For the construction of a line of rail from Ujein to Bhopal 250,000 *l.* was subscribed by the Begum, and 100,000 *l.* by the Kudsia Begum. It was proposed to set up cotton and saw-mills at Bhopal, and opium scales at Sehore, on the completion of the railway. Reform was effected in the working of the criminal law by a code framed on the model of the Indian penal and procedure codes, which it was hoped would gradually supplant the influence of Mahomedan legislation.

Bhopal.

Bundelkund States suffered, like others, from the scantiness of the monsoon rains in 1877, but in 1878 a spring harvest of nearly the average saved the country from famine. No special relief works were started, as it was found that the distress could be met by employing those in want on ordinary works and repairs. Cholera entered the northern and eastern parts of the country, and between July and October, 210 out of 311 persons who were affected succumbed to the disease. Smallpox was prevalent as usual during the hot season, but vaccination, now extensively adopted, kept it in check. Twelve cases of dacoity occurred, against one case in 1877, the increase being ascribed to the pressure from want and scarcity.

Bundelkund.

In the districts of the Baghelcund agency the general health was good during 1877-8, though smallpox of a not very virulent type was prevalent. As in other parts of Central India, the rainfall was deficient.

Baghelcund.

Rewah has considerably improved in its financial position; 9 lacs out of 20 due by the State have been paid by the Maharaja, partly from his private funds and partly with the help of his principal sirdars. Income from all sources was 74,751 *l.* (including a balance of 3,486 *l.* from the previous year), and expenditure 65,066 *l.*, leaving a surplus of 9,685 *l.*; a balance of 8,928 *l.* was still recoverable on account of land revenue. Though grain fetched

Rewah.

CENTRAL INDIA AGENCY. Rewah.

unusually high prices near the railway line, it was very cheap in the more remote and inaccessible parts of the country to which no roads led. No alteration took place in the constitution and powers of the criminal and civil courts; the former are reported to have worked very well. A new jail was much required, but lack of funds prevented its erection. Sanitary arrangements and discipline, formerly very defective, were beginning to shew beneficial results.

States under the Government of Bengal.

BENGAL STATES. Cooch Behar.

In Cooch Behar the year 1877-8 was not a prosperous one. The crop was short, and the people were consequently unable to take much advantage of the rise in price of produce caused by the distress in Southern India. The principal event of the year was the marriage of the Raja to the daughter of Baboo Keshub Chunder Sen, the leader of the Brahmo Somaj. The ceremony took place on 6 March 1878. Soon afterwards the Raja left India on a visit to Europe. Owing to the expenses of the Raja's marriage, which were estimated to amount to about 16,000 *l.*, there was a deficit in the State income of 7,895 *l.*; the actual income of the State during the year was 126,747 *l.*, and the expenditure 134,642 *l.* At the close of the year the liabilities of the State were 8,508 *l.*, and the assets 245,298 *l.* Crime shewed a slight decrease during the year. Persons under medical treatment at the charitable dispensaries numbered 15,525, against 12,143 in 1876-7. Fever was very prevalent. Great progress has been made in vaccination during several years, and it was clear that the prejudice of the people against the operation has been overcome. The number of operations in 1877-8 was 19,559. Schools increased in number from 322 to 360, and pupils from 8,745 to 9,832. Female education made considerable progress, the schools increasing from 28 to 43, and the pupils from 439 to 560, of whom 374 were Hindoos and 186 Mahomedans. Altogether 7,925 *l.* was expended on education, of which 5,385 *l.* was contributed from the funds of the Raja. Attention was paid to the sanitation of the town of Cooch Behar; new roads were opened in the State, the growth of jungle was kept down, hollows were filled up, and tanks were excavated. A new court house was completed at a cost of 10,000 *l.*.

Hill Tipperah.

On the North-Eastern frontier unbroken quiet reigned throughout the year. In Hill Tipperah an important step was taken by the Maharaja in the adoption of vigorous measures for the repression of domestic slavery. The system of frontier police in the Chittagong Hill districts worked very satisfactorily, and arrangements for securing regular communication between the frontier posts of Hill Tipperah and the Chittagong Hill districts were in progress. The annual durbar fair at Demagri was largely attended by the chiefs of the Syloo and Thanglowa clans. A good deal of damage was done to the crops in the hill districts by the heavy rainfall in August and September, and by the overflowing of the Kurnafoolee River. Trade was languid, and there was some distress among the population.

Cuttack Mehals, and Chota Nagpore Mehals.

The conduct of the chiefs of the tributary states on the borders of Orissa and on the South-Western frontier was with rare exceptions very satisfactory, and the tribute was in all cases punctually discharged. Most of the Maharajas managed their states with discretion, and contributed to the happiness and prosperity of their people. The conduct of the chiefs of three states was unsatisfactory, but measures were adopted for the proper settlement of the land and for the protection of the people from extravagant exactions.

Sikkim.

A mission visited Sikkim in October 1877, and delivered to the Maharaja a Delhi Assemblage banner, together with some presents from the Prince of Wales. The Sikkim peasantry appeared to be prosperous and contented.

States under the Government of the Punjab.

PUNJAB STATES. Kashmir.

Throughout 1877-8, and for a long time afterwards, the territories of the Maharaja of Kashmir suffered from a scarcity, which in some tracts was so severe as to be termed a famine, and caused the partial depopulation of the country by death and emigration. Snow fell heavily and unusually early in the winter months. The unharvested rice crop was injured, and the outturn of this grain, which is the principal food of the inhabitants of the Kashmir Valley,

PUNJAB STATES.

Valley, was much reduced. Snow also prevented the usual area of land from being brought under cultivation, while the heavy and unseasonable rain later in the year destroyed a large portion of the crops which had been sown. Considerable emigration set in from Kashmir to British territory, and the adjoining districts were heavily burdened with the support of impoverished and starving emigrants, persons in most cases unable or unwilling to work in return for the assistance afforded to them. The shawl and pashm trade in Kashmir continued depressed owing to the European demand for Kashmir shawl goods having almost ceased. The silk industry received a large share of attention from the Durbar. Reports received from Europe as to the quality of the silk manufactured were favorable, but the season was inclement and unsuitable for the silkworm. Mr. Ney Elias was appointed to succeed Mr. Shaw as British Commissioner in Ladak. Kashmir.

With regard to the three Phulkian States of Patiála, Jínd, and Nábha, there is very little to record concerning 1877-8. In Patiála the Council of Regency, appointed in August 1876, continued to conduct their duties to the satisfaction of Government. Public works were carried on with some activity, important works for the preservation of the city from floods were finished, and a large expenditure was made by both Patiála and the States of Jínd and Nábha towards the construction of the Sirhind Canal, which was speedily progressing towards completion. Patiála, Jínd, and Nábha.

Baháwalpur remained during 1877-8 under the charge of a British political officer, and the efforts of the Punjab Government were specially directed to so modify the administration (which had necessarily on the first assumption of British control been thrown, from the absence of competent native officials, into the hands of English officers) as to prevent any violent dislocation or break of continuity when the Nawab should assume the Government of his territory in November 1879. The new palace was nearly finished; it is said to be a handsome building, though somewhat too much in the European style for native taste. Baháwalpur Town has been embellished by various public buildings. The system of canals which have most largely developed the resources of the State has been improved and extended. As the Indus Valley passes through the whole length of the State, it is probable that the revenue of the State will, under the influence of canals and railways, rapidly increase. All customs and transit duties were during 1877-8 abolished in Baháwalpur, the State receiving from the British Government a sum of 8,000 *l.* a year as compensation. The State loan contracted soon after the assumption of the administration by the British Government was paid off in 1877-8. Baháwalpur.

On the death of Rajah Kharak Singh, on 5 September 1877, the administration of the Kapurthala State, which had been undertaken by the British Government during the Raja's illness, was continued, owing to the minority of his son. The administration is carried on, in strict accordance with the traditions of the State, through the agency of hereditary native officials acquainted with the territory and known to the people. Public works were energetically prosecuted; the main road from Kapurthala to Sultanpur was raised and partly metalled; State stables and barracks for the troops were completed. Revision of settlement was in progress throughout the year in the Oudh estates, and that of the Punjab Districts was approaching completion. The Lieutenant Governor of the Punjab visited Kapurthala to instal the young Raja on 17 November 1877. Kapurthala.

Mandi was reported to be flourishing, the people contented, and with an appearance of ease and prosperity. The only work of importance completed in 1877-8 was the bridge over the Beas opposite the town. This is an exceedingly fine work, and, though its construction has somewhat taxed the limited resources of the State, it will be of immense advantage for future convenience and purposes of trade. Mandi.

Owing to the oppressive conduct of the Raja of Suket, conduct which resulted in the revolt of his subjects against his rule, his deposition was sanctioned by the Government of India. The situation had become so serious that troops had to be moved from Dharmsála towards the Suket border. The Raja was removed to Lahore, and was afterwards permitted to take up his residence at Jullundur. His brother was appointed Regent of the State, under the immediate superintendence of the Commissioner of Jullundur. Suket.

Máler Kotla was administered by the Nawab during 1877-8 with tolerable Máler Kotla.

PUNJAB STATES.

success, but his temperament and delicate health were said to lead him to leave too much power in the hands of subordinates.

Chamba.

Chamba State enjoyed a further increase of revenue during 1877-8. Not only did the collections largely increase, but miscellaneous expenditure was reduced, leaving an unusually large surplus available to pay off State loans and to carry out works of public improvement. New lines of road were constructed, four large bridges were built, and other improvements effected. Survey and settlement work progressed favorably, and a considerable amount of new land was taken up and brought on to the rent roll.

Lohâru.

There was a financial difficulty in the small State of Lohâru, owing to the extravagance of the Nawab; and it was necessary to apply to Government for a loan to enable him to clear off his debts.

States under the Government of the Central Provinces.

CENTRAL PROVINCES STATES.

Feudatory States under the Government of the Central Provinces remained peaceable in 1877-8. In the four states which continued under the direct administration of Government, industries have been developed, fresh land has been brought under cultivation, and rights in property are respected. In all the Feudatory States, criminal, civil, and police Administration are conducted on the model of British laws, and in the states under direct management this is strictly the case. Punishments in Feudatory States are generally light, and the relative gravity of offences is not nicely distinguished. Much consideration is not yet paid to education, but something in this direction was being attempted both in Feudatory and *Zemindari* States.

Khairagarh.

Khairagarh having been for eight years under Government administration, and as the conduct of the sons of the late ruler had been for some years satisfactory, steps were taken to entrust them with the management of the State. The eldest son was appointed manager; and, if he displayed ability and discretion, the question of appointing him as Raja was to be considered.

Patna.

In Patna State the people everywhere were happy and prosperous, new tanks were being dug, and new land brought under cultivation; trade was brisk, and the revenue was got in with ease. Unfortunately the ex-ruler shewed no improvement in conduct during the year, and there was little hope that he would mend his ways.

Sakti.

In Sakti cultivation was spreading, and villages were increasing in size, consequent on the settled condition of the State.

Sarangarh.

Towards the close of the year 1877-8 it became necessary to take Sarangarh under temporary direct management. The heir of the State was a minor, and his mother had for years systematically mismanaged the administration. Though a year's revenue had been paid by the people to disembarrass the State of debt, yet the money had been squandered and the debt was not discharged.

Bastar.

Bastar suffered a partial failure of the crops during 1877-8. This caused some distress, which the Raja was mitigating by remissions of his land revenue demand.

Kalahandi.

The chief of Kalahandi, who has always been a good ruler, although in weak health, travelled during a great part of the year in Northern India. In a portion of his State held on Zemindari tenure, there was a rising among the Gonds and Khonds, owing to some exactions that had been made by the servants of the Zemindar. No life was lost in the riot, but property was plundered, and some houses destroyed. The ringleaders of the disturbance, and also the servants of the Zemindar, were subsequently imprisoned.

Sonpur.

Sonpur continued to be well managed. The Chief is a man of education and liberal views. During 1877-8 he procured two vaccinators for employment in his State. A dispensary was shortly to be opened.

Nandgaon.

Nandgaon is well cultivated and prosperous. Trade has much increased of late years, and in 1877-8 there were other signs of material progress. Metalled roads and drains were being provided for the town, and an establishment was kept up for its conservancy.

Kawardha.

Kawardha was not well administered in 1877-8, its Chief being addicted to the society of unworthy favorites.

States under the Government of Madras. MADRAS STATES.

Three new enactments were passed in the Travancore State during the *Malayalum* year ending 15 August 1877. One was enacted in the interests of the Christian community, and provided for offences relating to marriage; the second related to criminal breaches of contract, and was enacted chiefly for the convenience of coffee planters; the third amended the law in regard to the registration of assurances. Under Civil Courts there was a marked improvement in the execution of decrees, while two additional munsif courts were established in order to clear off arrears. Criminal cases increased. Mortality in the jails was as high as 9 per cent., owing to the prevalence of cholera. It was intended to build a new central jail. Registration transactions increased in value. The land revenue amounted to 163,201 *l.* Except in the southern parts, the season was generally favorable. The land tax on coffee was abolished and an export duty of 2½ per cent. substituted, the latter form of taxation being preferred by the planting interest. Receipts from customs duty were 122,666 *l.*, exclusive of 4,000 *l.* paid by the British Government on account of the abolished import duties. The total revenue of the State amounted to 552,620 *l.*, the total expenditure exceeding this by only 1,409 *l.* A large surplus would have been shewn, but for the general failure of the cardamom crop, on which the loss was estimated at 16,000 *l.* A railway was urgently needed between Trevandrum and Tinnivelly, but the Travancore Government was opposed to constructing this by the investment of State funds, though, on the other hand, it was in no way adverse to the introduction of a railway to be constructed by a company under a guaranteed percentage. Education in the State continued to progress. The building of the museum was approaching completion. Travancore.

In Cochin, the total revenue for the *Malayalum* year ending 15 August 1877 was 128,158 *l.*, and the disbursements somewhat exceeded this amount. On Public Works 30,000 *l.* was expended. Besides roads, good progress was made with the Ernacollum backwater reclamation, the new jail at Ernacollum, the pier and the basin at the important harbour of Narakel, and the Pannacooty Girder Bridge. Attention was directed to the importance of protecting the water communication between the Madras Railway and Cochin, a work requiring the cooperation of both the Madras and Cochin Governments. Narakel Port remained open throughout the monsoons of 1876-7, and afforded great facility for the landing of cargoes of rice during the famine. Cochin.

But little of importance occurred in the Agency Tracts during 1877-8. Education made good progress in the Ganjam Agency, there being 744 Ooryah, Khond, and Sourah boys under instruction in the hill schools, which are said to be very popular. As far as elementary education goes, the attainments of these boys compare favorably with those of boys at schools of the same standard in the plains. This was the first year that loaded carts made their way through the Maliah Hills from Sambalpur, in the Central Provinces, to the low country of Ganjam. Civilisation was extending, the Khonds having of late become more temperate in the use of ardent spirits. Caravans of Brinjarry traders to Parvatipur and elsewhere were much fewer than usual, being probably deterred by the fear of famine prices and of cholera. There was no distress in any of the hill districts, though prices were high owing to the increased exportations of corn to markets at the foot of the hills. Ganjam and Vizagapatam Agencies.

Out of an aggregate registered debt of 7¾ lacs, owed to creditors by the Raja of Puducottah, over four lacs had been paid off at the end of June 1877, and it was believed that the account would soon be closed by the sale of certain valuable jewels which had been pawned by his Highness and redeemed through the Political Agent. A survey and settlement were in contemplation for the State. Puducottah.

The Raja of Banganapalli had a loan of three lacs of rupees made to him in 1876-7, to enable him to pay his principal creditors, and the settlement with them was effected in 1877-8 through the Collector. Banganapalli.

BOMBAY STATES.

States under the Government of Bombay.

There were very few Native States throughout the Bombay Presidency that did not suffer more or less from the failure of rainfall, either in 1876 or 1877. In the Deccan and Western Carnatic States the distress amounted to famine. In the northern part of the Presidency the failure was not so extensive as to seriously affect any but the lowest classes. Although relief measures had to be taken in most of the States, comparatively few States, whether under the direct control of Government officers or not, were obliged to contract further debts on account of the famine. It is in the organisation of the police and general conduct of judicial matters, that the greatest improvement has taken place of late years among the tributary States. Altogether, 47,294 persons were arrested in them during the year 1877-8, against 33,584 in 1876-7; convictions were obtained in 56 per cent. of the arrests. Offences reported to magisterial authorities numbered 45,210, as compared with 35,379 in the previous year; the increase was noticeable in every State, and was greatest in the famine districts. The number of persons dealt with is set down as 73,218, against 55,570 in 1876-7, and 57 per cent. of them were convicted. Larger sums are said to be now spent in the various States on works of general utility in preference to palaces or temples. Municipalities had been established in 17 of the larger towns, and dispensaries in 71. Surveys were in progress in most of the more important States, and by their means the assessment of land revenue will be distributed equally over the cultivating population, instead of being borne by those who have no influence at court. Vaccination, although it suffered a temporary check during the famine period, has already been as successful in tributary as in Government districts in preventing epidemic outbursts of small-pox. Education has received a certain degree of attention in nearly every State, and 48,656 *l.* was expended during 1877-8 on 960 schools that were under the inspection of Government officials. Schools not under inspection are said to be numerous and very efficient in Kathiawar, but did not appear to flourish elsewhere.

Cutch. In Cutch the Council of Regency abolished the practice of farming out the land revenue, and introduced laws similar to those in force in British territory regarding registration, stamping, shipping, and procedure in courts of justice. Surveys made progress. Crime increased, though serious offences were rare. Litigation decreased. Trade shewed a slight decline, attributed to the temporary effect of the bad season in the State. The Regency were making great efforts to bring back the trade to its former prosperous condition; and, with this view, the harbour of Mandvi was greatly improved, and overtures were made towards getting a branch of the Western Rajputana State Railway constructed up to Cutch.

Palanpur. Few events during the year 1878 in the Palanpur group of States call for special remark. As elsewhere the season was unfavorable. The increase of crime, as in Cutch, consisted chiefly of offences against property, though in some few States more serious crimes were reported. Litigation decreased considerably.

Mahi Kanta. In the 59 Mahi Kanta States criminal justice was fairly conducted. Crimes increased considerably owing to the unfavorable season; but the working of the police shewed an improvement. Education in this district seemed to be making some progress among the lower classes.

Kathiawar. No event of political importance occurred in the 189 territorial divisions of Kathiawar. In Navanagar State the heir-apparent, Bhimsingji (called Kalubha), had for some time been giving trouble to his father, and in consequence of his misconduct and bad character, his right of succession has been vetoed by the paramount power. His Highness the Jam had also to contend against other factions at his court, and his annoyances were aggravated by the failure of crops in his State. Bhaunagar State, after eight years joint administration by a European and a Native officer, was replaced in the hands of the Rawal. This was the first instance in which the delicate experiment of a joint administration was tried, and the trusteeship has been discharged to the lasting benefit of the State. Every department has been remodelled and organised. 209 miles of road have been constructed; the port has been improved; the town has been supplied with water and embellished with some of the finest public buildings

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in the Presidency; while the cash balance, which was 229,830 *l.* when the Trustees assumed charge of the State, increased to 518,640 *l.* at the close of their administration. Favorable reports were made of the administration of the Thakor of Limri. The Thakor of Morvi was admitted to a share in the administration of his State, and shewed an intelligent interest in his duties. With regard to Kathiawar as a whole, crime increased as in other parts of the Presidency, and the number of serious robberies on the highway or in gangs was considerable, more than they had been for several years; but there was no general outbreak among the predatory tribes. The scarcity that caused an increase of criminal cases tended to discourage resort to the Civil Courts. The cotton crop shewed a heavy decrease of 75 per cent., the outturn being successful in only a few places in the North. Education continued to progress very rapidly. In 1858 there were only 29 schools in Kathiawar; in 1877 there were 483. BOMBAY STATES. Kathiawar.

Improvements were effected in the judicial administration of the small State of Cambay, and the Nawáb finally accepted cash compensation to the amount annually derived from his salt works, which were accordingly closed. Nothing else of moment occurred during 1877-8. Cambay.

In the Rewa Kanta States the lower classes were driven to great straits by the want of rain; and relief works on a small scale had to be set on foot. Crime increased considerably; and at one time the wild tribes in the State of Chota Udepur shewed a disposition to break out into raids and other serious offences. Arraugements were in progress to connect some of the roads with the terminus of the Branch Railway at Pali. Education made some progress. Surveys were being made in each of the three Surat States, and considerable sums were spent on public works, chiefly communications. Rewa Kanta.

With regard to the wild forest States under the Collector of Khandesh, there were no events of importance during 1877-8. The mode of life of the Dangs is primitive, and shews scarcely any variation from year to year. Their principal source of revenue is timber, which it is the great aim of Government to save from being recklessly destroyed, merely to gratify the chief's whim of the moment. Khandesh.

Peint, of which the revenue was about 5,240 *l.*, lapsed to the British Government during 1877-8, the Begum having died without legitimate issue. Legislative enactments will gradually be made applicable to the State, this course being considered best on account of the wild condition of the people, and the general poverty of the district. One or two good roads had been constructed, and some progress was made in education. Forests were likely under proper management to yield a considerable revenue. Peint.

In Janjira a series of riots occurred in 1877-8 between Hindoos and Mahomedans. At a festival of the former it had been the practice to prohibit during Ramázán the playing of music by the Hindoos in their processions. This year the prohibition was withdrawn, provided that no music was played in front or near any Mahomedan place of worship. The great Ganpati Festival fell in Ramázán, and the Mahomedans determined to resist the carrying out of the new order regarding the playing of music. They accordingly attacked the Hindoos in several villages. They ringleaders were punished, and some new rules drawn up by the Nawáb, in consultation with his leading Hindoos and Mahomedan subjects, will probably prevent the recurrence of another such outbreak of sectarian animosity. Janjira.

The municipal system was introduced during 1877-8 into the principal town of Sáwant Wári. Education made some progress. An increase of vaccination was recorded. Extra police were posted on the Goa frontier to guard against salt smuggling. Sáwant Wári.

With regard to the Deccan States, improvement was shewn in the administration of Bhor. Magisterial establishments were revised. Some attention was paid to tree planting, the subject having been specially forced upon the chief's consideration, inasmuch as the State contains the hills in which the irrigationally important rivers, called the Mutha and Nira, take their rise, and it is necessary to preserve the forests round the sources and early course of these streams. Bhor.

Of Aundh it is said that most of the expenditure for public works was devoted to temples and rest-houses, in preference to undertakings of greater public utility. Aundh.

BOMBAY STATES.

Phaltan.

In Phaltan, too, little progress was manifested, a great proportion of the revenue being spent on establishment.

Jath.

Jath, which is under the direct control of Government, was much affected by famine. On this account the introduction of the Revenue survey system was postponed.

Akalkot.

Akalkot was severely affected by the famine in 1876, but was improving under Government management. Retrenchments were effected in the private expenses of the chief's family, and most of the debt incurred by the late chief was liquidated.

Kolhapur.

In the important State of Kolhapur, which has been under direct control since 1866 during the minority of its chief, the famine was severely felt during 1876 and 1877. The total revenue credited to the State during the year 1877-8 was 175,486 *l.* Famine expenditure caused a deficit of 35,775 *l.* The financial position of the State was, however, satisfactory. So long a period of minority has enabled Government to set the different departments of the State on a thoroughly efficient footing, without introducing any violent changes distasteful to the people or the nobles about the court.

XIV.

FRONTIER RELATIONS.

Frontier Relations.

Punjab Border Tribes.

With one or two exceptions there was during 1877-8 a general condition of peace and good order on the border of the Punjab. The tranquillity of the Hazara border was principally assured by the successful capture of Abbas Khan, a notorious brigand, who had long kept the country in a state of disturbance. The death of the venerable Akhund of Swat, which occurred on 12 January 1878, is an event deserving of mention, as his influence had long been paramount in the hills to the north of the Punjab, and was considerable in Kabul and among the whole of the tribes on the Afghan border. His death has been succeeded by what is virtually a state of anarchy in Swat, there being no less than three candidates for power. It seemed probable that the claims of the Akhund's son would eventually be acknowledged by the people, although he does not possess the character of his father, and has not, like him, the authority derived from asceticism and sanctity. A raid was made by the Bunerwals in the upper part of the Peshawur Valley in July 1877, but was repulsed by the British forces with considerable loss to the enemy in killed, wounded, and prisoners; and the Bunerwals being subjected to a rigorous blockade, were at last compelled to ask for pardon and pay the fine demanded by Government. Strong representations having been made to the Government of India as to the urgent necessity of punishing the Utman Khels for a murderous outrage committed in December 1877 on the laborers employed on the Swat Canal, an expedition was organised to surprise by a night attack their principal village of Sapri, and inflict such punishment as could be given in a short time. The surprise was excellently arranged, and the village was surrounded and assaulted. The principal instigator of the outrage on the canal works was killed, and the object of the expedition was accomplished. This was supplemented a short time afterwards by a rapid military expedition against the Utman Khel villages of Búcha, during which the leading men of the contumacious sections attended, and submitted to the terms imposed by Government. Major Cavagnari planned the expeditions with great skill, and accompanied the force. In the Kohat district, the most important event during the year was the rupture with the Jowaki Afridis, which necessitated operations on an extended scale. During the Pass Afridi rupture connected with the Kohat Pass Road, it had been necessary to compel the Jowakis to maintain a strict neutrality. This engagement they observed until the close of the Pass difficulties in March 1877. In July they abandoned their peaceful, if not friendly, attitude, directed a series of attacks against British territory, cut the telegraph wires, and attacked British subjects and villages with a surprising degree of audacity and energy. These outrages led to a rapid punitive expedition in August, under General Keyes; but the outrages nevertheless continued, and culminated in an attack on a body of native infantry at Ishkakot, in the British territory, on the night of 25 October. Fourteen Sepoys were killed and wounded in this attack. The continued outrages of the tribe at last rendered a military expedition against them absolutely necessary. This expedition was successfully carried out by Brigadier-Generals Keyes and Ross. The Lieutenant-Governor of the Punjab had the satisfaction of sanctioning a final settlement with the tribe. This settlement was ratified at a durbar held at Peshawur on 4 March 1878, when the submission of the Jowaki deputation was received. A fine of 500 *l.* was paid, and the stipulated number of arms surrendered. As regards border affairs in the Bannu district, with the exception of an attack on police constables near Bannu (the act not of a tribe, but of a few outlaws and criminals), there were no serious offences to record during the year. This outrage was satisfactorily settled by a blockade of the Daur villages which had harbored the assassins, the fine demanded by the Government being paid in full. The Waziri tribe, which had in past years given unceasing trouble, and especially the Mahsud portion of it, behaved during the year exceedingly well. Large numbers of the tribe have since come down and settled in British territory, encouraged to do so by grants of land.

Arakan Hill Tracts.

In the Arakan hill tracts there were no raids during 1877-8. The despatch of

FRONTIER RELATIONS.

of a force of police to chastise an agressive tribe beyond our administrative frontier was followed by satisfactory results. A clan of Mros had for a long time been harassing some Khyeng villages close to the border, and some vigorous measures were necessary to put an end to the disturbances. The force sent against the Mro villages consisted of 130 men. It started on 15 April, and returned on 2 May, having without bloodshed exacted a fine from the villages and taken captive the marauding chiefs. The latter were released after payment of a suitable penalty had been arranged. Subsequently the heads of the hostile tribes met at a fair held in British territory, and a reconciliation was effected. Trade and agriculture in the district are capable of great development, for the country possesses exceptional advantages of soil and climate. Cotton and tobacco are sent down to the plains in exchange for rice and piece-goods. Indiarubber is begun to be brought down in small quantities from beyond the frontier. The hill people are indolent and apathetic.

Burma.

With Upper Burma our relations during 1877-8 were friendly. Negotiations for a revision of the treaty of 1867 were opened through the Resident at Mandalay, but concessions were demanded by the Burmese Government, which it was impossible to grant, and no agreement could be settled.

Karennee.

The removal of two Burmese outposts established in Karrennee was the only event of note in that quarter. The lawless condition of Karennee continued to be a source of anxiety on the Toungoo frontier.

Siam.

It was not found possible during 1877-8 to carry out the proposal to appoint a vice-consul at Zimmay, several preliminary questions regarding jurisdiction being still unsettled. Some attempt was made by the Siamese authorities to improve their police administration on the Salween frontier. Towards the close of the year the heir-apparent paid a friendly visit to the Commissioner of Tenasserim.

XV.

MILITARY.

Strength, Cost, &c., of the Indian Army.

A CONCISE statement of strength and composition of the army serving in India was given in the *Times* of 4 March 1878. As nothing better regarding the subject has been written, a portion of it is here reproduced.

The establishment of the Indian Army has not varied materially for several years past, and may be put down at 6,000 commissioned European officers, 60,000 European non-commissioned officers and rank and file, and 120,000 native soldiers of all ranks. These numbers do not include any of the native artificers and followers. Since the year 1861 all the European troops in India have formed part of the regular army of the Crown, and are periodically relieved from home. They are governed by exactly the same rules as to discipline and general principles of organisation as the other portions of Her Majesty's Army. The native troops are officered by officers of the Indian Staff Corps and of Her Majesty's Indian forces, the latter being the officers taken over from the East India Company who have not entered the Staff Corps.

Artillery.

The European Artillery in India is simply a portion of the Royal regiment of Artillery, and comprises horse, field, and garrison batteries. Each battery, of whatever description, has five officers, a major, a captain, and three lieutenants, and there is a proportion of colonels and lieutenant-colonels for the command and supervision of the Artillery in divisions, districts and garrisons. Of Horse Artillery there are 15 batteries, 11 in Bengal, two in Madras, and two in Bombay. Each battery has an establishment of 157 European soldiers and 178 horses. The Field Artillery consists of 43 batteries, 22 in Bengal, 11 in Madras, and 10 in Bombay, and each battery has 157 European soldiers and 110 horses. The so-called Garrison Artillery consists of 28 batteries, 15 in Bengal, seven in Madras, and six in Bombay; but two of these batteries in Bengal are attached to mule mountain guns, and one in Madras is attached to a battery of elephant mountain guns, while two of the batteries in Bengal, one in Madras, and one in Bombay are attached to heavy field batteries with elephant and bullock draught. The garrison batteries have an establishment of 87 European soldiers, but there is a slight addition in the case of mountain and heavy field batteries. The garrison batteries not employed with mountain or heavy field guns are intended for the defence of forts or for coast batteries, or for service with siege trains. The whole strength of Royal Artillery in India may be estimated at 12,300 officers and men, with 7,655 horses. After the Mutiny of 1857 it was decided not to maintain any Native Artillery except a few batteries for service on frontiers and at places where Europeans could not be advantageously employed, and this decision has been rigidly adhered to. The only Native Artillery, therefore, now borne on the rolls of the Indian army are four mountain batteries and one garrison battery of the Punjab Frontier Force, and two Bombay mountain batteries, with an aggregate strength of 519 artillerymen, besides muleteers. These Native batteries have officers attached to them from the Royal Artillery. All the batteries of Horse and Field Artillery and the Royal Artillery mountain batteries in Bengal have six guns each, and the Madras mountain battery and the native batteries have four guns each. The regulation gun for Horse Artillery and Field Batteries is the nine-pounder muzzle-loading rifled gun, weighing for the Horse Artillery 6 cwt., and for the Field Batteries 8 cwt., but a few batteries still retain the Armstrong gun, so as to use up the ammunition peculiar to that kind of ordnance. The mountain gun is a 7-pounder rifled piece, weighing 200 pounds. The heavy field batteries have each three 40-pounder Armstrong guns, with two 8-inch and two $5\frac{1}{2}$-inch mortars. Each of the batteries of Horse and Field Artillery has at all times with it its first line of wagons fully horsed, and several that are considered liable to be called on for service at short notice have their second line of wagons with them, provided with bullock draught. In other cases the second line of wagons is kept, ready packed for issue, in the nearest ordnance magazine. Thus, when only one line of wagons is present an Armstrong battery has in possession 124 rounds of ammunition per gun, and a muzzle-loading rifled battery 148 rounds. If the second line of

STRENGTH, COST, &c., OF THE INDIAN ARMY.

wagons is present the ammunition in possession is brought up to 214 rounds per gun in the Armstrong batteries and to 256 rounds for the muzzle-loading batteries. The second line of wagons, it may be noted, is at once sent to any battery that is warned for service. A heavy field battery has with it 122 rounds for each 40-pounder gun and 108 shells and four carcasses for each of the large mortars, and 118 shells and four carcasses for each of the small mortars. Ninety rounds per gun are kept with each mountain battery of Royal Artillery, and 120 rounds with the Native mountain batteries. In addition to the above about 1,000 rounds per piece are kept in reserve in the various arsenals and magazines.

Engineers.

Of Royal Engineers there were 374 officers at the beginning of 1878 on the Indian establishment. These officers are for the most part employed in the Public Works Department, but several are in the Survey Department, and other miscellaneous employments. They are all available for military duty when wanted, and a small number are always attached to the three Native corps of Sappers and Miners, which have also a proportion of European non-commissioned officers from the corps of Royal Engineers. About 200 European soldiers are employed in this way, and to constitute a skeleton company of Royal Engineers, which is maintained in each Presidency for the purpose of supplying European non-commissioned officers for transfer as wanted to the Public Works Department, which in India is a Civil department, though entrusted as one part of its duty with the construction and maintenance of all military buildings. The three Native corps of Sappers and Miners consist—exclusive of the European officers and non-commissioned officers—of 1,160 men of all ranks in Bengal; of 1,311 men in Madras, and of 480 men in Bombay.

Cavalry.

Of British Cavalry there are nine regiments in India, six in Bengal, two in Madras, and one in Bombay. These regiments are always taken from either the medium or the light cavalry of the British army. They each have six service troops and an Indian establishment, exclusive of medical officers, of 25 officers and 455 non-commissioned officers and rank and file, with 436 horses.

The only Native cavalry corps in the Indian Army which are mounted by the State are the Body Guards of the Viceroy and the Governor of Madras and the four regiments of Madras Light Cavalry. The Viceroy's body guard has an establishment of two European officers and 120 natives of all ranks. The Madras Body Guard has two European officers and two European non-comissioned officers, with 125 native soldiers, but the latter are included on the establishment of the different Cavalry regiments of the Madras Presidency. The four Madras Cavalry regiments have each six troops, with an establishment of seven European officers and 387 native soldiers. All the rest of the cavalry of the Indian Army is on what is called the Silladar system, the horses being the property of the men. All the regiments of the Bengal and Bombay cavalry and the Punjab Frontier Force have an establishment of six troops, with seven European officers, namely, a commandant, an adjutant, three squadron commanders, and two junior officers, styled squadron officers. The 19 Bengal regiments have a strength of 457 men, and the seven Bombay and five Punjab regiments have 493 men. In these regiments and in all other Native cavalry every man is mounted.

Besides the foregoing there is a Body Guard for the Governor of Bombay of a strength of one European officer and 71 men; the Guide Cavalry, of four troops, with three European officers and 341 native soldiers; two regiments of Central India Horse, with a commandant for the two corps, and six European officers and 493 men in each regiment; a squadron of cavalry attached to the Deolee, and one attached to the Erinpoora Force, each composed of one European officer and 165 natives; and the Aden troop, of one European officer and 100 men. There is also a corps of Belooch Mounted Guides for service on the Sind frontier, consisting of 315 men.

The whole strength of the cavalry of the Indian Army may, therefore, be estimated at 4,600 Europeans and 18,600 natives.

Infantry.

Of British infantry there are 50 battalions in India, and every regiment of this arm now takes its turn of Indian service excepting the battalions of the brigade of Foot Guards. Thirty-two of the battalions in India are quartered in Bengal and nine in each of the other Presidencies. Each battalion has an Indian establishment of eight companies with 30 officers and 886 men.

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